THE NEWSWEEKLY OF INFORMATION SYSTEMS MANAGEMENT
July 10, 1989 · Vol. XXIII · No. 28 · 128 Pages · $2/Copy · $48/Year

COMPUTERWORLD

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Oracle tweaks Mac product in effort to hide SQL from end users. Page 8.

Food firms custom-blend OS/2

Industry-specific architecture builds on Extended Edition functions

BY ELISABETH HORWITT
CW STAFF

Five Fortune 100-class food and drug companies are participating in the development of what may be the first IBM OS/2 Extended Edition-based information management architecture designed for a vertical industry.

The platform promises to deliver what users expect but rarely get from computer-integrated manufacturing: information flow all the way from factory-floor devices to white-collar information systems such as government reporting, participants said. The project, according to one industry analyst, represents the first of a new breed of open, vertically designed systems that could reduce the need for customized multivendor solutions.

Johnson & Johnson, Ralston Purina Co., Campbell Soup Co., Nestle Foods Corp. and Smithkline Beckman Corp. (see story, page 4) are participating in a consortium with IBM and software vendor Industrial Computing Designs Corp., or Incode, to develop and test the Process Operations Management System, according to Incode President Curtis Grina.

If the pilots are successful, the companies plan to implement the system enterprisewide, he added.

The software uses "all the bells and whistles of OS/2 Extended," including Presentation Manager, Communications Manager and Advanced Program-to-Program Communications, according to Grina. It is designed to automate the execution of production orders in continuous or batch-process industries such as food and drug manufacturing, he said.

POMS represents "the first of the industry-specific architectures — probably one of the biggest trends we'll see over the next few years," said Bruce Richardson, a vice-president at Cambridge, Mass., research firm Advanced Manufacturing Research, Inc. Such systems address "users' single biggest complaint," which is the cost of developing customized multivendor solutions from scratch,

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ITT legend poised for CIS bailout

BY NELL MARGOLIS
CW STAFF

SYRACUSE, N.Y. — Harold Geneen, the legendary former chairman of ITT Corp., is readying a bid to pull the second-largest U.S. independent computer leasing firm out of bankruptcy court.

Geneen built ITT from a telecommunications company into a multibillion-dollar empire during a 21-year reign that virtually defined the diversified conglomerate in the annals of U.S. business. Now he is emerging as a leading contender to resurrect Continental Information Systems Corp. from Chapter 11 bankruptcy status, several sources confirmed last week.

CIS sought protection Jan. 13 from its creditors under Chapter 11 of the Federal Bankruptcy Code. The firm has 10,000 customers with 25,000 to 30,000 leases in its portfolio, but its balance sheet was unglued by a chain reaction of stockholder, lender and customer defections triggered by the 1987 acquisi-

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Urge to merge carries Big Eight away

BY CLINTON WILDER
CW STAFF

In information systems consulting, the Big Eight has been referred to as "Arthur Andersen and the Seven Dwarfs." Now Arthur Andersen & Co. wants to team up with one of the dwarfs to stand even taller.

Andersen and Price Waterhouse announced last week that they are discussing a merger that would strengthen Andersen's considerable dominance as the Big Eight's IS consulting and systems integration leader.

The deal would be the largest in a wave of consolidation that has engulfed not only the Big Eight but all leading IS consulting firms.

Within the past month, Big Eight accounting firms Ernst & Whinney and Arthur Young announced their intention to merge, creating Ernst & Young, whose combined consulting businesses would be second only to Andersen's. Deloitte Haskins & Sells and Touche Ross & Co. announced last week that they will also merge to form Deloitte & Touche.

However, the merger will not dramatically alter the landscape for IS executives seeking consulting or systems integration services because the market is intensely competitive, predicted Michael Kahn, director of the systems integration program at International Data Corp. in Framingham, Mass. Competing with huge players like Electronic Data Systems Corp., IBM and Computer Sciences Corp., an

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VSE reborn, but users wary of cost and life expectancy

BY ROBERT MORAN
CW STAFF

Users of IBM's DOS/VSE have successfully lobbied to revive the operating system long presumed to be living on borrowed time. But amid the cheers, some users expressed concern about how much IBM's new strategy would cost them and about the duration of VSE's new life.

At a seminar held last month in White Plains, N.Y., Bernd Robatzek, IBM's director of software systems in Boblingen, West Germany, said that IBM intends to close the gap between VSE and MVS/ESA.

The first signs of VSE's increased functionality will appear within 18 months, Robatzek promised, and users can expect to see three significant enhancements to the VSE system: relief from virtual-storage constraints by allowing native-mode 31-bit addressing and dynamic reconnect and path select to direct-access storage — two features that will speed I/O access.

VSE users, who number about 20,000 and have vocally insisted that IBM continue to support the operating system of choice for IBM's smaller mainframes, were gleeful that IBM went public with news that they

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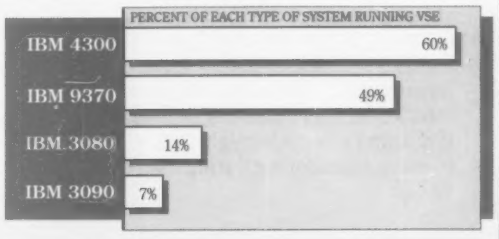
Low end is lifeblood for VSE

VSE's strength as the most widely used operating system on IBM mainframes lies mainly in the smaller CPUs



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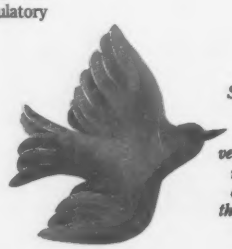
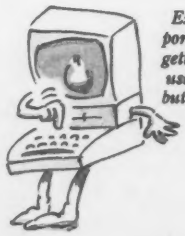
UPDATE

Docking the ship or the check? Soon an additional 112 "floats" of the U.S. Navy fleet will be equipped with ATMs supplied by NCR, just months after the first system was installed aboard an aircraft carrier. The Navy boasts publicly about the man-hours saved in processing paychecks for the "swabbies." But according to sources, one of the less-talked-about benefits of the installations for the U.S. government is the ability to more effectively deduct payments for child support for families left permanently behind. If nothing else, this might lead to more cab-sharing during liberty call.



System/36 and 38 software vendors are riding the current to the AS/400. Page 71.



Executive support systems are getting easier to use successfully but harder to set up correctly. Page 85.

EXECUTIVE BRIEFING

■ **Five leading food and drug manufacturers have joined forces** with IBM and a software vendor in what may be the first in a series of efforts to build industry-specific vertical applications based on OS/2 Extended Edition. Now in the pilot stage, the project reportedly uses "all of the bells and whistles of OS/2" Extended. **Page 1.**

■ **The most powerful executive support systems** in use today are not generic information and office automation utilities. They are highly customized solutions for executives with specific business needs and desired effects on their minds. Yet the majority of ESS efforts in the field today are on a course toward disappointment, destined to fall short of their potential impact. There are two major reasons why. First is the lack of clarity on the part of the sponsoring executive as to the purpose of the ESS. Second is the failure of IS to incorporate the system into the management processes of the organization. **Page 85.**

■ **The search for the right people** to build back-office bank systems led Fleet/Norstar Financial Services Group CIO Michael Zucchini to recruit new MBA holders whose expertise is in manufacturing rather than finance. **Page 6.**

■ **Once the Big Eight** but possibly to become the Big Five, the upper tier of the accounting and IS consulting world continued its dramatic makeover last week. Arthur Andersen discussed merging with Price-Waterhouse, while Deloitte Haskins & Sells set plans to join forces with Touche Ross & Co. **Page 1.**

■ **The new and more complex commercial uses** that managers are finding for Digital Equipment Corp. VAXs and the movement of VAXs into traditional IBM mainframe shops are driving demand for the system management tools that users are accustomed to in the IBM world. **Page 23.**

■ **There is still more to come for those VAX users,** with DEC planning announcements of new RISC and VAX platforms and software tomorrow. **Page 7.**

■ **Be careful launching your own consulting firm,** advises a former IS professional who did so successfully. Her advice is this: rely on personal savings, keep the overhead low and don't cut corners in accounting. Be wary of partners and remember "you are the business." **Page 99.**

■ **IBM's VSE operating system has won a reprieve** from what some observers feel has been a sentence to a long, slow death. In what is seen as a victory for users who don't want to migrate to MVS, IBM now promises major enhancements such as native 31-bit addressing for VSE. **Page 1.**

■ **The paperless library** has taken its first steps at Rockwell International. Electronic information hasn't replaced books yet, but it has been popular with Rockwell's corporate librarians as a paper supplement. **Page 25.**

■ **Yes, system security is a hot issue,** and people care about it. However, recent research indicates that too many companies are uneven in how they treat security. For example, they may be security-conscious in the central IS group but not in the distributed processing environment. **Page 68.**

■ **The Federal Communications Commission** does not have enough people and information technology resources to handle its current work load. Adding new duties without adding resources would be foolish, according to representatives of user groups addressing a congressional panel. **Page 47.**

■ **Most business executives** surveyed recently support the idea of giving more regulatory freedom to regional telephone companies. **Page 47.**

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PCs win feds over

Productivity gains seen easing DOD crunch

BY DOUGLAS BARNEY
CW STAFF

WASHINGTON, D.C. — A billion-dollar U.S. Department of Defense personal computer contract set to be awarded this fall is part of an automation push aimed at allowing the government to make do with less.

This bid, dubbed Desktop III, remains intact despite pressure from Congress to restrain Pentagon budgets and is testimony to the productivity benefits PCs provide, government officials said. The 24-in.-thick specification calls for Unix- and MS-DOS-compatible Intel Corp. 80286- and 80386-based systems. Though assigned by the U.S. Air Force, any branch of the military or Defense Department will be able to purchase the systems.

Desktop III replaces the 2½-year-old Desktop II contract under which Zenith Data Systems Corp. sold 450,000 PCs to the U.S. government through another Air Force contract. Desktop III is currently the largest government PC bid, with non-defense sectors generally taking a more scattered approach.

Desktop III bidders include IBM, which hopes to further legitimize its Micro Channel Architecture; Zenith; Unisys Corp.; and several reseller organizations. Many other bidders have not been publicly identified.

Ironically, the recent well-publicized federal budget crunch that has limited government expansion may spur rather than curtail PC purchases. PCs are currently the cornerstone of an effort to increase efficiency and allow the government to catch up with leading American businesses in automation. To reach these lofty goals, the U.S. government plans to double the number of installed PCs by next year despite the federal cash crunch.

PCs save money

Unlike many who have questioned the benefits of automation, all government informations systems professionals who were contacted by *Computerworld* were clear on one point: According to these users, PCs clearly increase productivity and save money.

Craig Hirai said the U.S. Army buys PCs specifically because of a budget crunch. "We try to make the typical civil servant more productive," said Hirai, an official of the Pentagon's Macintosh User Group. According to Hirai, there are some 15,000 PCs in the Pentagon, which employs 25,000 workers. Hirai is looking at the Desktop III largely to replace older, less reliable PCs and to allow users to gain more power.

Productivity claims were bolstered by a recent Social Security Administration (SSA) study of one of its departments. The agency increased PC penetration to one system for every two people and reduced the clerical staff by 75%. With the help of the PCs, the department's performance remained the same, said Ronald C. Bonig, SSA's director of administrative systems development.

As with other organizations, less money often means that there are fewer people to perform given tasks. "Secretaries are becoming increasingly hard for us to hire. You have to use technology to replace them," said Rich Gonzalez, program manager of office automation at the SSA.

Gonzalez blamed budgetary pressures and a scarcity of secretaries for the problem.

The agency is also saving money. One application that used to cost $1,200 every time it ran on the mainframe now costs $50 to run on the PC, Bonig said.

The goal, said one vendor that sells to the government, is to have eight out of 10 government workers equipped with PCs. Currently, approximately half of government workers have PCs, the vendor's study said.

Some areas of government have remarkably high levels of PC penetration.

"Each of my staff has a computer on the desk and a laptop. We've got capability coming out of our ears," said Robert L. Ross, agency liaison officer at the U.S. General Services Administration, which has authority over government purchases of information systems products and services.

Within the federal government, database management systems are the No. 1 application, word processing runs second, and spreadsheets are third.

Big order for small systems

A federal procurement master contract, to be awarded in October, will mean about $1 billion to the PC vendor that best meets the minimum requirements

System type	General purpose: for databases, word processing, spreadsheets	Multitasking workstation: for CAD/CAM, network server, software engineering
CPU (minimum)	16 bit, 10 MHz	32 bit, 15 MHz
Databus	16 bit	32 bit
Memory	4M bytes RAM, expandable to 15M bytes	
Software	Run MS-DOS and accommodate Posix interface to Unix	
Units	Total of 200,000 to 250,000	

CW CHART: JOHN YORK

OS/2

FROM PAGE 1

by minimizing the amount of customization needed, Richardson said. "Users are looking for an open, multisupplier solution."

POMS consists of prewritten applications that automate many of the basic information management functions that are common to all processing manufacturers, such as generating reports to the Food and Drug Administration and executing production orders on the plant floor, Grina said. A Personal System/2 server maintains "a huge relational database of all transactions, including who did what, how much materials and machines were used, what mistakes were made," he added.

Smithkline sees the platform primarily as a way to "computerize collection of manufacturing data from equipment" such as sensors and shop-floor controllers, said Ray Pacheco, manager of information systems at the facility. The information collected by the OS/2 Extended-based platform can then be analyzed "to improve the process and to eliminate the paper records we already have," Pacheco said.

Participating companies expressed enthusiasm about being able to provide input into the platform and have the first crack at using the product.

"POMS basically provides the only real integration path that we see for [IBM shops] such as ours at almost all levels," said Walter Carey, director of manufacturing systems development at Nestle Foods. "This gives us a chance to participate in the development of code." Both Nestle Foods' and Smithkline's spokesmen said they were optimistic about implementing the POMS platform enterprisewide, following successful completion of their pilots.

IBM also has high hopes for POMS as an "open architecture to integrate with multiple offerings, which we feel is unique in industry," said Larry George, IBM's senior process industry support representative. "We can't provide one product to suit the entire world, so we've taken this approach of a generic interface."

Following the product's commercial release, which should happen by year's end, IBM hopes to market POMS through its Cooperative Software Program, George said.

POMS taps IBM tools

Ten months ago, Smithkline initiated a pilot test of POMS at its Cidra, Puerto Rico, plant.

A Token-Ring network of 32 IBM Personal System/2s collects information from a variety of shop floor devices, then sends it to a PS/2-based server equipped with a 312M-byte hard disk for storage and later analysis.

The server uploads information using an IBM Advanced Peer-to-Peer Communications connection to an IBM Application System/400, which runs the manufacturing information system, resource planning, scheduling and inventory functions, said Ray Pacheco, manager of information systems. The AS/400 host downloads orders to the server, which distributes them to the other PS/2s and then to the shop floor devices.

What benefits does the drug company expect to realize from POMS? "First, improving regulatory compliance through elimination of human errors inherent in filling out paperwork and handling processes; secondly, we expect to improve product quality through a better process control; thirdly, we will eliminate all paperwork and associated handling, filing and carrying costs," Pacheco said.

One of the things that most impressed Pacheco about POMS was the prewritten menus and screens.

"OS/2 Extended is a powerful operating system that [ordinarily] requires a lot of training for a line operator who has never interfaced with computers before," Pacheco said.

ELISABETH HORWITT

COMPUTERWORLD

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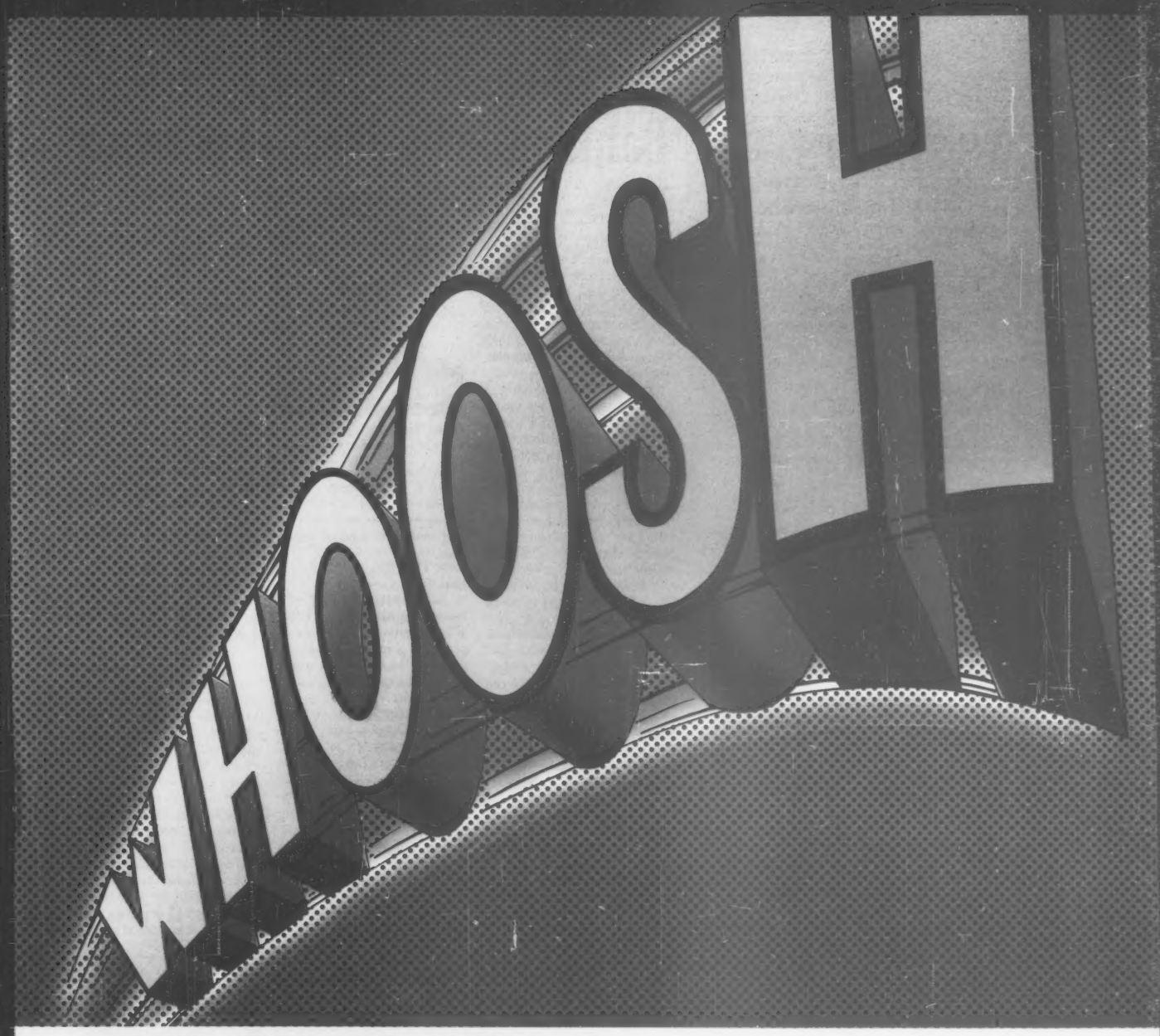

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NEWS SHORTS

Stage set for 4M-bit chip production

IBM still will not say exactly when 4M-bit memory chips will be available in systems, but it looks like the company is now poised for production of these chips the world over. Last week, it announced that fabrication on the powerful memory chip began at its manufacturing facility in Sindelfingen, West Germany. The chips are now being produced in volume at IBM's Essex Junction, Vt., facility. IBM also recently announced that a 4M-bit chip effort was under way at a factory in Yasu, Japan.

Novell to enlist in COS

The Corporation for Open Systems will announce this week that Novell, Inc. has joined the consortium as a senior research member. The Provo, Utah-based networking company paid a $200,000 fee for the highest level of COS membership.

Comdisco adds AS/400 backup

A thing's value, it could be said, is measured by whether someone else will insure it. Comdisco Disaster Recovery Services, Inc. (CDRS) in Rosemont, Ill., has confirmed the growing importance of IBM's Application System/400 by joining the list of vendors that have added the midrange machine to its backup offerings. CDRS placed an AS/400 Model B60 in its Carlstadt, N.J., center and plans to add a B60 this month to its Toronto facility and more AS/400s to its nine other North American recovery centers.

Jupiter sells to Intel

Intel Corp. has acquired Jupiter Technology, Inc. in Waltham, Mass., for an undisclosed sum. Jupiter's communications processors, which link various hosts and networking environments, complement Intel's Fastpath line of channel-based host networking products. Jupiter employs about 50 people.

Exxon Valdez tapes erased

Computer operators at Exxon Corp. accidentally destroyed thousands of computerized documents containing potentially important information on the March 24 Alaskan oil spill, Exxon officials confirmed last week. A since-dismissed operator said he and three other operators routinely wrote over tapes containing documents relating to the spill before they realized the material was covered by a court order requiring Exxon to preserve records relating to the spill. Exxon lawyers said copies of the documents may exist in other files.

Osman to head Unisys group

Unisys Corp. last week appointed Dewaine L. Osman as president of its Communications and Networks Group. Osman, former head of Unisys commercial information systems' U.S. sales and marketing group, will replace Edward Botwinick, who retired. Osman's duties include overseeing the integration of Unisys subsidiary Timeplex, Inc.'s Link line of T1 switches with Unisys' Distributed Communications Processor line.

HP offers Mac ink-jet printer

Macintosh owners can look forward to laser-quality printing at an affordable price thanks to the introduction of the Hewlett-Packard Co. Deskwriter ink-jet printer, according to HP. The new printer, announced last week, is priced at $1,195, uses Quickdraw commands and works with all popular Macintosh business software, HP said.

Covia signs distribution pact

Covia Corp. and Gemini Group Automated Distribution Systems, Inc. last week signed a pact giving Toronto-based Gemini exclusive distribution rights to market Covia's Apollo computer reservation system (CRS) in Canada. Plans call for Covia to deliver a Canadian version of Apollo next year to Gemini, which is owned by Air Canada and PWA Corp. The announcement extends Covia's reach, which plans to supply technology to the European-based Galileo CRS, into global markets.

Banking on business experience

BY CHARLES VON SIMSON
CW STAFF

PROVIDENCE, R.I. — Mike Zucchini doesn't make widgets; in fact, his company doesn't run a single machine tool. But the chief information officer of Fleet/Norstar Financial Services Group has been trying hard this year to woo some of the top manufacturing talent in the country.

Zucchini is doing his information systems recruiting among recent graduates of MIT's Sloan School of Management who have experience not in IS or finance but in manufacturing. He believes their expertise will help the bank's operations adopt the disciplines, such as just-in-time inventory and continuous processing, that have transformed manufacturing in recent years.

"Bank back offices are much like a manufacturing process; they haven't changed a great deal in 20 years," Zucchini said. "At the same time, manufacturing companies have made enormous strides. We feel if we can adopt some of those concepts, we can effect significant changes."

Bringing manufacturing processes to the service sector did not originate at Fleet/Norstar, but few banks have been as interested in getting expertise directly from manufacturing.

"I have not seen a lot of financial services organizations pursue this kind of discipline, and I don't know why," said Michael Packer, vice-president of the Mac Group, a Cambridge, Mass.-based management consultancy. "The most obvious reason is that there are not many managers in financial services that have that kind of experience."

Fleet/Norstar's *Zucchini seeks practical IS candidates*

Leading to control

While Zucchini's view of management has been put into effect at only a few other institutions, financial services managers and consultants see it as a powerful concept for firms struggling to gain control over costs and increased flexibility in deregulated financial services markets.

Fleet/Norstar's concentration is in systems development, but information technology is a critical part of a larger issue. "In the area of costs, manufacturing firms in general have a much better handle on their products than banks," said Charles M. Johnston, vice-president of finance at Mellon Bank.

Johnston spent seven years in the chemical processing division of a large steel company prior to joining Mellon. "Because of deregulation, banks are just beginning to think about pricing products as a function of cost."

Zucchini said that adopting manufacturing controls will help monitor costs for Fleet/Norstar, a $29 billion diversified national financial services holding company headquartered here.

Just-in-time inventory practices will be a central area of pursuit. Zucchini said the closely integrated relationships with suppliers and customers, which allow manufacturers to move raw material directly into the production process, can be successfully transplanted to banking.

"Checks coming into the back office still suffer long backlogs, as does getting information out to the Federal Reserve," Zucchini said. "Beside being a customer service issue, eliminating delays always helps costs."

Zucchini said he hopes to complete the interviews and hire several Sloan candidates in operations research positions as soon as possible. While it is still too early to plan for systems requirements, the organizational changes that will be involved have not escaped him.

He will look carefully at reengineering basic office work flows in order to more efficiently implement any new systems or processes. "Reengineering on a large scale may be required," Zucchini said. "We hope that the people we get from Sloan will be able to tell us where to start."

Legend

FROM PAGE 1

tion of rival CMI Corp.

CIS confirmed last week that bidding to buy the troubled firm is between Finalco, a computer leasing company headquartered in McLean, Va., and CIS Acquisition Corp. The latter, sources confirmed, was created by Geneen's The Geneen Group.

"Harold Geneen is management's choice because he would keep the company running," said L. Crandall Hays, an analyst at Milwaukee-based investment firm Robert W. Baird & Co. Robert Sullivan, an analyst at Paine Webber, Inc., said the 79-year-old Geneen has emerged periodically since his 1980 retirement from ITT "as an investor in a number of different companies."

Geneen came to ITT in 1959 from Raytheon Manufacturing Corp., with a background in finance and accounting. "He came in with a reputation as a doer," Sullivan said, adding that he pursued an aggressive acquisition strategy into a permanent place in American corporate history.

"Geneen has been working very closely with CIS management" to develop a buyout strategy, said Thomas Donovan, director of Investment Banking Services at Technology Investment Corp., a subsidiary of Framingham, Mass.-based IDC Financial Services Corp. Geneen "has spent a lot of time at the company, talking with employees and encouraging them to hang in there," Donovan said.

Keeping it together

According to a source close to CIS who requested anonymity, "The word is that Harold Geneen will keep the administration and sales force of CIS together, for the most part. Nobody else is talking about doing that."

That would be good news to the IS director at a major East Coast chemical company, who requested both personal and corporate anonymity. "CIS has been a great company to deal with; we would love to see it continue," he said.

Not all users were as enthusiastic, however. "I'm tempted to say that I'm relatively indifferent," said Jerry Bull, IS director at the BMY Division of Harsco Corp. in York, Pa. A CIS customer since 1986, BMY "has existing business with CIS that will run its course no matter what," Bull said. "Our bigger problem is that they're not in much of a position to do anything for us when it comes to day-to-day business — little things. Would that end with a purchase [by the Geneen Group]? I just don't know."

For some, the taint of CIS' troubled past is too strong to be overcome even by the powerful magic of a name like Geneen. "I'm a little more leery of dealing with any third-party leasing company after what happened with CIS," said Ralph Czeklawski, assistant director of operations at University Hospital of Cleveland and a former CMI customer. "I've heard too many horror stories." His company, he said, has recently turned to IBM Credit Corp.

A Geneen takeover is far from a done deal. The bankruptcy court has 60 days in which to evaluate any offer proposed by the CIS board to the bankruptcy committee. During that time, alternative bidders can be heard.

Dueling product lines could mean tangled future for DEC

BY AMY CORTESE
CW STAFF

With the introduction of a barrage of RISC and VAX platforms this week, Digital Equipment Corp.'s marketing staff will face its biggest challenge yet — how to rationalize its two disparate product lines.

The announcement, which DEC is billing as "Computing for the '90s," will include a mix of both reduced instruction set computing (RISC)- and VAX-based systems, as well as software and peripherals, analysts said last week. But, coming on the heels of DEC's Jan. 10 desktop rollout, whose sheer volume of information caused weeks of user bewilderment, tomorrow's announcement is likely to prompt as many questions as it answers.

The confusion stems in part from a lack of a clear statement of direction from DEC. The company itself often seems to be struggling internally with these issues. "I think there's a great deal of confusion within" DEC, said Bob Randolph, an analyst at Technology Financial Services, Inc. in Chelmsford, Mass.

But with the introduction of its most powerful RISC platforms to date, DEC is creating a RISC midrange lineup that can compete with VAX/VMS, highlighting the price/performance disparity that exists between the product lines, said Terry Shannon, director of International Data Corp.'s DEC Advisory Service.

The high-performance Decsystem 5810 and 5820, to debut tomorrow, are widely expected to be based on one or two 18 million instructions per second (MIPS) R3000 RISC processors, topping out DEC's RISC offering. The RISC systems reportedly will use the standard VAX 6000 series peripherals and cabinets. According to Christian A. Christianson, director of midrange strategies for Westport, Conn.-based Meta Group, Inc., the physical appearance to the user will be identical. "The goal is for them to be interchangeable, but that's at least two or three years away," Christianson said.

The processing power of the dual-processor model will approach that of the VAX 6400, a midrange VAX running at 7 to 40 VAX units of performance that will also be unveiled tomorrow.

The emergence of the RISC-based product line raises questions about DEC's commitment to its traditional VAX line. "Now that DEC has demonstrated it is serious about RISC, how long until it comes full circle to a single hardware architecture?" Shannon asked. He predicted that DEC will phase out its aging VAX line in favor of RISC processors by 1993.

"It's time for DEC to manage the migration to a new architecture," Shannon contended. "This announcement will be the opening gun."

However, DEC maintains it is committed to both product lines, and the firm is expected to lay out its strategy for integrating the two through common networking and software services. In January's desktop announcement, DEC introduced Decwindows as a unifying element across both lines. Decwindows, part of an umbrella strategy that DEC calls Network Application Support services (NAS), is intended to integrate its own and other vendors' hardware platforms.

Shannon said NAS will be key for DEC in providing "a bridge that allows a bifurcated hardware and software strategy to be seen as a unified strategy." But while DEC's RISC-based Ultrix systems offer superior price/performance, many users are committed to the VAX. Stan Rose, a vice-president at Bankers Trust Co. in New York, noted that the VMS operating system is more robust than Ultrix and has better security, networking and database functionality.

Senior Editor Rosemary Hamilton contributed to this report.

Some of each from DEC

Other rollouts expected from DEC this week include the following:

- Decstation 2100. An entry-level RISC-based Ultrix workstation based on the Mips Computer Systems, Inc. R2000 processor. The competitively priced model is intended to take aim at Sun Microsystems, Inc.'s Sparcstation.
- Decsystem 5400. A RISC-based Ultrix multiuser server. Enclosed in a Microvax cabinet using standard Microvax memory, the unit is basically a Microvax with a Mips processor.
- Microvax 3100. A four-user, entry-level Microvax.
- On the software side, DEC will announce Vida for DB2. The software product, which was originally scheduled to be announced last month, will allow DEC's RDB database management system to access data from IBM's DB2.

AMY CORTESE

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Oracle greases Mac application tool

BY JEAN S. BOZMAN
CW STAFF

BELMONT, Calif. — Oracle Corp. moved to strengthen its bid for Apple Computer, Inc. Macintosh customers last week, updating its 6-month-old Macintosh product with an application generator that it claims simplifies links to Apple's Hypercard product.

The Oracle for Macintosh Version 1.1, priced at $299 for software developers, is intended to speed up the rate at which off-the-shelf applications are produced. A networking version for end users is priced at $999. Both packages are scheduled to ship in the fourth quarter.

"This is MIS heaven and hell," one West Coast IS manager whose firm uses Oracle on Digital Equipment Corp. VAX computers said. "Now you can give your users a flexible, maintainable Apple interface to get at corporate data from the mainframe, but you find yourself having to control their access to that data for security reasons."

The West Coast company, which did not want to be identified, has been using Oracle for Macintosh Version 1.0 since February. The earlier version allows Mac users to access the firm's Vaxcluster — but only after 10 hours of training in Oracle and Hypercard techniques.

Easier access

Version 1.1 will make it easier for end users to access Oracle through the Macintosh Hypercard interface without becoming too involved in Oracle programming techniques, explained Marc Benioff, director of Oracle's Macintosh business unit.

"Every DB2 command, every Oracle command, is now in Hypertalk," Benioff said. "End users can use our application generator to build SQL statements that will import corporate data into a Hypercard application."

The application generator supports relational joins between multiple relational database management system tables. For example, a single request could join data from Oracle running on a VAX with data from DB2 running on an IBM 3090 mainframe.

The Macintosh's consistent interface allows end users to cut and paste the corporate data into standard Mac applications, such as Wordperfect Corp.'s Wordperfect, Benioff said. Software developers, writing to a single application program interface, can write Oracle applications that take advantage of the Hypercard front end.

Big 8

FROM PAGE 1

Andersen-Price combination would have "no overwhelming competitive advantage," he said.

"If EDS bought Andersen, it would be a different story," Kahn added.

Within Chicago-based Andersen, the rapid rise of consulting has created a schism with the slow-growth auditing business that may have sparked the proposed merger, observers said. Late last year, Andersen spun off Andersen Consulting as an independent business unit after several key consultants defected to start their own firms [CW, Dec. 5]. Earlier this month, Melvyn E. Bergstein, Andersen Consulting's top technology managing partner, announced that he would leave the firm to pursue other opportunities (see story this page).

The Price Waterhouse merger "looks like the Andersen audit and tax people looking to bolster their side," said David Lord, managing editor of "Consultants News," a newsletter in Fitzwilliam, N.H. "I'm sure that's what is driving it, not the consulting side." An Andersen source said that consulting partners may try to block the merger, and there will be intense lobbying in the next 60 days by the auditing partners in favor of the deal.

Andersen is noted for computer-integrated manufacturing consulting to discrete manufacturers, while Price Waterhouse is stronger in process industries such as oil, gas and chemicals, as well as insurance, said George Carbone, senior associate at Broadview Associates, a Fort Lee, N.J.-based investment banking firm specializing in information technology.

Andersen's bifurcated organization could create synergy problems in the merged firm, according to Lord. "I don't know how they're going to engineer this," he said.

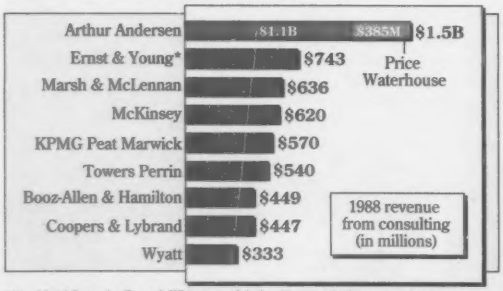
Nonetheless, everybody appears to be doing it. Two leading IS consulting firms have been acquired in the past two years: Nolan, Norton & Co. by KPMG Peat Marwick, and Index Group, Inc. by Computer Sciences Corp. Peat Marwick was the first Big Eight firm to merge with a fellow auditor, KMG Main Hurdman in 1987. Smaller consultancies are also consolidating rapidly.

The Big Eight firms believe they need to get bigger for better access to capital and the ability to offer more global services, both consulting and auditing. "We're looking at many of the same factors that drove brokerage houses to merge in the 1970s — the combination of geographic and market expansion," said John Dexheimer, a principal at Broadview Associates. "All services businesses, not just consulting, now have to look at market share on a global, not national basis."

In a joint statement, Andersen and Price Waterhouse said they will not comment on the merger discussions in the next 60 days.

What's at stake

The anticipated merger of Arthur Andersen with Price Waterhouse would place Andersen farther ahead of the pack



*Combined figure for Ernst & Whinney and Arthur Young, who have agreed to merge

SOURCE: *CONSULTANTS NEWS*

CW CHART: FRANK C. O'CONNELL

Krause says 3Com is ironing the wrinkles in business plan

BY JEAN S. BOZMAN
CW STAFF

SANTA CLARA, Calif. — The business plan at 3Com Corp. hit a snag this spring, Chief Executive Officer William Krause told a group of 75 analysts visiting company headquarters here last week, and the organization is pinning its hopes on big-ticket sales to large information systems organizations to put things right.

The networking company's last quarter, ended May 31, showed mixed results, Krause said. Although revenue and profits were $111.7 million — up 46% from a year ago — and net income was up 12%, the sales force was unable to meet Wall Street's expectations, Krause said. Sales of low-end adapters and newer enterprisewide software have been lagging, he added. "Regaining order momentum is our top priority," Krause said.

Krause told the analysts Thursday that 3Com plans to reach $500 million in sales in fiscal 1990, based on a 30% annual growth in sales. Even so, he said he expects first-quarter income to falter. Further, he conceded, the sales force may be selling in the face of an economic recession.

The answer to slow sales, says Robert Finocchio, vice-president and general manager of 3Com's Marketing and Services Division, is creating $1-million-a-year accounts with large clients.

"Our target customer has evolved to be a large organization with multiple locations and multiple vendors," Finocchio said. "The bad news is we have a very long sales cycle. The good news is we're able to beat IBM on its own turf — in IBM accounts." Even so, he said, most large 3Com accounts place about $200,000 in annual orders — far short of the $1 million mark.

3Com has targeted hundreds of user sites throughout this country as possible new accounts, expanding its direct sales force to more than 100. These direct sales personnel are encouraged to make inroads at large client sites, even at sites that already buy 3Com products from value-added resellers. "We've developed guidelines for the sales force," Finocchio said, "so that we have very little conflict between the multiple sales channels."

Winsome ways

During the last six months, 3Com's Enterprise Systems Division has been trying to gain "wins" in Fortune 500 companies, federal agencies and foreign countries, particularly in Europe. "Our strategy is to go in and get design wins and to turn them into annuities," he said. So far, the direct sales force accounts for 17% of all 3Com sales last year. In fiscal 1990, the goal will be to push direct sales past the 20%.

Several analysts said they believe 3Com will have a tough time gaining market share at the expense of such strong competitors as Novell, Inc. in Provo, Utah, and Banyan Systems, Inc. in Westboro, Mass.

"They're coming to grips with reality," said Christopher Mines, vice-president of research at Cowen & Co., a Boston investment house. "They have scaled back their expectations." Last year, 3Com was aiming at 40% direct sales.

Fischer in, Bergstein out

Moving quickly to fill its top techology consulting vacancy, Andersen Consulting last week named 28-year Arthur Andersen & Co. veteran W. James Fischer to the post of managing partner of technology and competence.

Fischer takes over the post to be vacated by Melvyn E. Bergstein later this year. Bergstein, a 31-year veteran of the organization, said that he is considering many job possibilities with both vendors and users [CW, July 3].

Acting as head of the billion-dollar technology consulting business, Fischer will oversee about 500 consultants from Andersen's Chicago headquarters. He will also join the Andersen Consulting Executive Committee, which interfaces with Arthur Andersen's top management. Fischer has been based in Los Angeles as regional managing partner of Andersen Consulting's western regional operations.

Andersen's Fischer

His previous posts included division head for the Advanced Technology and Integration division of the Chicago office and director of the Chicago Advanced Systems Center.

A native of Hammond, Ind., Fischer joined Andersen in 1971 after earning a master's degree in industrial administration from Purdue University. He became a partner in 1981.

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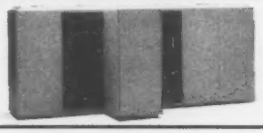 IBM Mainframe	ORACLE	Rdb

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	San Diego	Sept 21*af*
	San Francisco	Aug 24 Sept 28
	Santa Clara	Aug 17*fh* Sept 28*mm*
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CT	Farmington	Aug 3*f*
	Stamford	Sept 12*m*
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AT&T snags Prudential for Tariff 12

BY ELISABETH HORWITT
CW STAFF

ROSELAND, N.J. — Prudential Insurance Co. became AT&T's largest Tariff 12 customer to date last week, signing an exclusive five-year contract worth more than $200 million with the carrier. The contract concludes one more engagement in the fierce war that AT&T is waging with MCI Communications Corp. and U.S. Sprint Communications Co. for major accounts.

Prudential decided approximately six months ago that it was time to cash in on the major discounts that carriers were offering major customers, according to Vice-President of Information Systems William Rush.

Until recently, the company had been concerned about locking itself into a discount rate that would look less attractive "if tariff trends continued downward," Rush said. However, Prudential was reassured recently when companies such as Du Pont Co. and Ford Motor Co. were able to renegotiate their Tariff 12 contracts to take advantage of even lower rates, he added.

The company took only six months to design a request for proposals and award the contract, in contrast with the more typical period of 1½ to two years, Rush said. "We felt it was important to move as quickly as possible because of the dollars per day [in potential savings] we were losing," he said. Rush declined to comment about the amount of projected savings, saying only that they were considerable.

AT&T will be the sole supplier of long-distance voice and data networking needs, both within the U.S. and between U.S. and overseas sites, for the entire Prudential family of insurance companies, Rush said. "We believe the best leverage came from an all-or-nothing approach," he added.

Prudential shares the concern with other major businesses that one carrier may not be able to provide enough alternate facilities for backup lines. However, AT&T "has told us that they would indicate route by route where we have vulnerabilities" and will allow Prudential to use another carrier "if those vulnerabilities cannot be addressed by an AT&T solution," he said.

AT&T will initially provide a "software-defined, network-like" service for voice, as well as a T1 backbone linking major sites and multidrop 9.6K bit/sec. links for regional subnetworks, Rush explained. Contract clauses address possible future enhanced service offerings such as fractional T1 but not Integrated Services Digital Network (ISDN), for which no set tariff rates exist yet, Rush said. ISDN "is not a product; it's an amorphous mass," he said.

Prudential felt that network management was "just too strategic a funcfion to offload to a vendor, especially since we really haven't seen much of a track record from any of them on managing commercial networks," Rush said.

Long-distance race

Prudential Insurance's Tariff 12 filing last week may actually get lost in the flood of major contracts that other large organizations are on the verge of signing with major long-distance carriers, according to Henry Levine, a partner at Washington, D.C., law firm Morrison & Foerster.

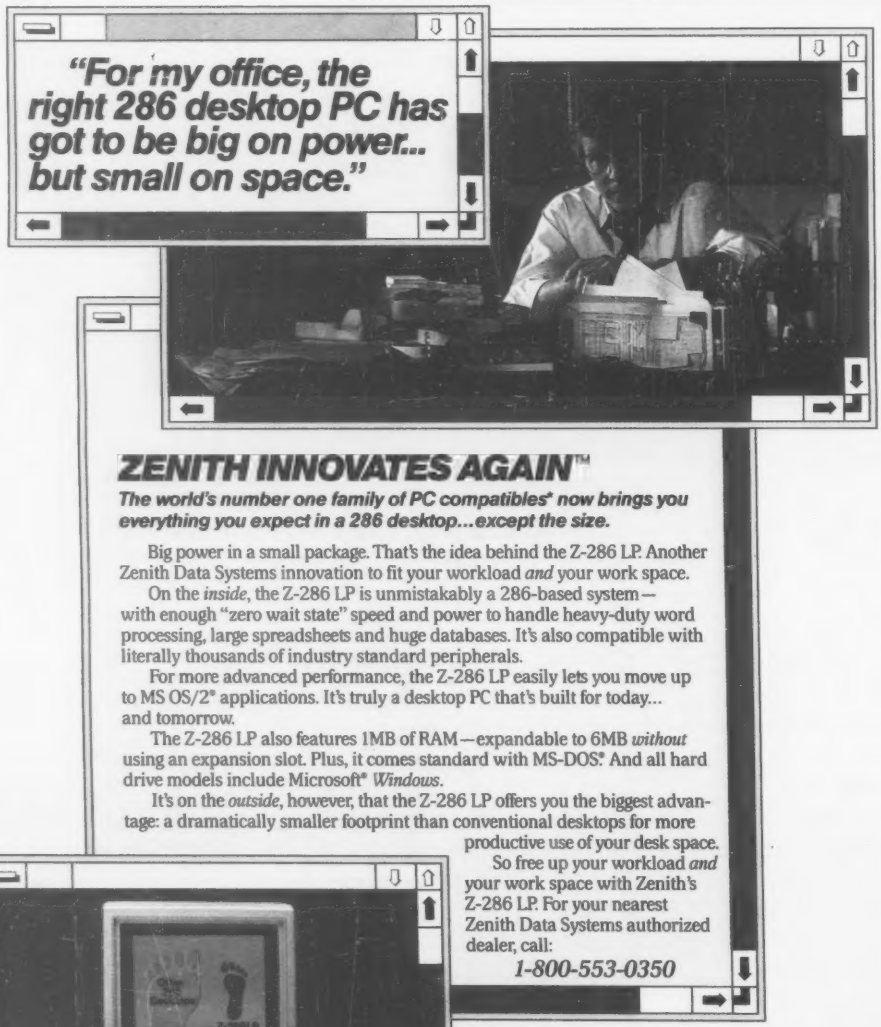
Several large brokerage firms, financial service companies and manufacturing companies should be signing up with one of the three major long-distance carriers or with international carrier Cable & Wireless Communications, Inc., said Levine, who is participating in several of the negotiations.

Many factors have added to this flood of negotiations, Levine said. One is that Tariff 12 "has officially received the FCC's blessing, so that everyone feels a lot more comfortable about going ahead."

Also boosting prospective customers' comfort level is the fact that AT&T has "delivered on its general commitment that people who come in for extended terms will not suffer," Levine said. In the past few weeks, early Tariff 12 customers American Express Co., General Electric Co., Du Pont and Ford have renegotiated their Tariff 12 contracts to reflect downward trends in regular tariff rates.

Perhaps the major reason firms are signing up now, Levine said, is the escalating discount war among the carriers, which has allowed savings of between 20% and 40%: "When you spend $10 million to $40 million a year in telecommunications, that's a lot of savings."

ELISABETH HORWITT



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PAGE 6 NEWS MAY 8, 1989

TECHNOLOGY UPDATE

Users Should Expect a Rocky Marriage of Dbase and SQL

By Barry Shaw

The perfect marriage of Dbase and SQL may never exist, despite what you hear.

As SQL database servers begin shipping this month, the issue of performance hangs over all vendors of Dbase compatibles. Any system that must translate record-oriented Dbase procedures into set-oriented SQL involves more of a performance burden than a system that uses native SQL in its front-end tools.

Users expecting existing single-user Dbase applications to snap as fast as they do now may also be in for a shock.

If those issues are solved, PC and LAN administrators still face a series of tough choices if they try to maintain existing Dbase applications without adding SQL.

TRIGGERS PROVIDE SEAMLESS OPERATION. Extensive technology has been built into SQL Server to enable existing Dbase applications to run unchanged against SQL Server data.

This Ashton-Tate/Microsoft/Sybase technology appears to be superior to technology employed by server vendors Gupta, Novell, and Oracle, due to the presence in SQL Server of triggers—special SQL statements used to maintain referential integrity. Through triggers, Dbase IV will be capable of sharing data with non-Dbase applications, even though every Dbase application adds three fields to each SQL table it accesses. These tables give each SQL record accessed by Dbase IV a number, note whether the record has been marked for deletion by Dbase, and give the record a time/date stamp when it is changed.

SQL COMPATIBILITY PROVES PORTABILITY. Allied against SQL Server are PC-based database servers known as the "DB2 compatibles." All claim to be compatible with the application programming interface of IBM's mainframe DB2 database. A few vendors, noting that IBM's OS/2 Extended Edition Database Manager is not identical to DB2, promise compatibility with Extended Edition only.

The catch is, these database servers do not contain triggers, so many Dbase applications cannot be ported to these servers and be expected to interoperate with non-Dbase front ends without extensive modification. If application developers embed SQL in all Dbase applications, the point could become moot.

CLOSING PERSPECTIVES. If performance is the overriding issue, the choice of database server will depend on whether applications cannot be ported.

For value-added resellers expected to drive early adoption of database servers, the question becomes whether they want to develop separate Dbase versions of their applications, as well as another application tailored to DB2, written in Pascal, SQL Windows, Extended Edition, or other DB2-compatible front ends.

For corporate Dbase developers, the issue is by far at what point do they decide to add embedded SQL to increase applications portability across DB2-compatible servers and improve performance.

Analysts agree that the more Dbase applications stick with end-only access to database server data, for so-called "decision support" applications such as querying and reporting, the better those applications will work with SQL databases servers. The more read/write activity, the more mission-critical the task, and the more likely those Dbase applications must be rewritten. Even Ashton-Tate acknowledges that Dbase programmers must be educated in the ways of SQL database servers.

Another factor, of still unknown significance, is whether Dbase IV, Version 1.1 will host non-Dbase SQL Server front ends to market. Ashton-Tate still claims it will deliver Dbase IV 1.1 next month.

Another challenge to SQL Server is to provide a gateway or SQL statement pass-through to DB2. For now, DB2 compatibles such as IBM's own Extended Edition offer far stronger options for mainframe connectivity, particularly for mission-critical applications.

In the VAX world, both Sybase and Interbase are in much better shape, offering compatible database servers today that run under VMS and Unix. The crowded Unix database market has not allowed a standard to emerge the way DB2 has on the mainframe.

SMART WAYS TO SEE. As SQL Server ships, the market now enters a critical time, where almost all agree that only a few of today's announced database servers will emerge as standards. The stakes are equally high for the Dbase standard, now nearly 10 years old, which must prove itself fast enough and powerful enough to remain the primary PC database language, or yield to a successor.□

InfoWorld, May 8, 1989

SQL not Dbase forte, test finds

Ashton-Tate promises to correct query flaws after competitor criticism

BY DOUGLAS BARNEY
CW STAFF

TORRANCE, Calif. — All along, critics argued that Ashton-Tate Corp. would not be able to produce an effective implementation of SQL in its Dbase IV product, charges the company vehemently denied. Now that Dbase IV is out, it seems the critics weren't right after all, at least regarding Ashton-Tate's first crack at SQL.

According to Fred Luk, president of QueBase Systems, Inc., who has tested Dbase IV, users may get incorrect results from even simple SQL queries. Luk tested Dbase IV against his own product, Dquery, which provides Dbase III Plus with SQL capabilities. Ashton-Tate has not denied his findings and pledges to correct Dbase IV flaws.

With some queries, Dbase IV found an incorrect result. With others, it failed to run because of internal errors. At other times, Dbase IV's SQL gave inconsistent results depending on the method of querying.

Fortunately, as Ashton-Tate spokesperson said, some fixes should already be available through the Compuserve on-line service. Ashton-Tate officials also said the SQL problems are very data dependent, only cropping up when the product is used in unusual and specific ways.

The biggest problem for Ashton-Tate was its lack of SQL experience. Unlike many SQL developers with years of experience, Ashton-Tate had to build its complex SQL system nearly from scratch.

Another problem for SQL programmers is the lack of support for nulls — a way of dealing with missing data — said Fabian Pascal, an independent relational database consultant based in Washington, D.C.

Others have criticized the performance of the SQL. The central problem with the performance is that SQL was designed with so-called set processing in mind, where data is manipulated in entire tables. Dbase IV, however, maintains its record-at-a-time database engine. Translating between the two is both difficult and slow.

SQL bugs accompany problems in other areas of the product, including numerous incompatibilities with Dbase III Plus and problems with the Run command [CW, Nov. 12, 1988].

Data View
PC packages bigger in big business
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Calculated fields (whose data values are computed as entered) do not work properly either, said noted Dbase teacher Adam Green. Calculated fields work only with Browse and do not work with Edit of Append. Nor does the documentation match the product, Green argued. For example, the manual provides messages that the Range command is supposed to give. The range command, however, fails to provide those messages.

There is also little backward compatibility for Dbase IV users that want advantage of the new memo field feature. Any Dbase IV database that uses memo fields can not be read by Dbase III, Dbase III Plus or any Dbase compatible.

Although Ashton-Tate never promised full backward compatibility, the new memo field will present a major problem for firms with a mix of Dbase III and Dbase IV users.

"People are going to have to share data," Green said. "There is not going to be an instant upgrade."

Computerworld, January 9, 1989

Bugs Uncovered in Dbase IV's SQL

Ashton-Tate Admits Internal Errors That Cause Inaccurate Results

By Barry Shaw

Dbase IV's SQL mode contains internal errors and sometimes produces inaccurate results, Ashton-Tate has admitted.

Ashton-Tate is developing work-arounds, which will be available to users this month, and plans to fix the problem entirely in future versions, company representatives said.

In one instance, a query produces 36 records under Hildebrandt SQL tests, but Dbase IV returns an answer of 12 records. In four other known instances, Dbase IV is unable to process the query, returning an "internal error" message. Another query produced no results, and Dbase IV gives inconsistent results in yet another test.

The problems may result from the complexities of optimizing and translating SQL queries and subqueries into Dbase commands, a process that takes place before Dbase IV is implemented to users, said various SQL experts.

According to tests produced by Quadbase Systems of Sunnyvale, California, in one instance Dbase IV failed to retrieve all the data that matched an SQL search condition. If users do not write commands in the proper syntax exactly as the manual prescribes, they may mistake the errors for complete, final answers, said Fred Luk, Quadbase's president. Quadbase sells Dquery, an SQL query interface for Dbase and 1-2-3 data files. All the queries in Quadbase's evaluation of Dbase IV ran

See Dbase, Page 103

This internal error in Dbase IV SQL may come when the physical order of records in a file is a very serious to the order of its index.

InfoWorld, January 2, 1989

PS/2 Model 50Z proves too hot for Dbase IV to handle

BY DOUGLAS BARNEY
CW STAFF

TORRANCE, Calif. — If you want IBM's sizzling Personal System/2 Model 50Z and Ashton-Tate Corp.'s hottest version of Dbase, both are available for a price, but don't try to run them together.

The latest PS/2 Model 50Z is a speedier version of the cooler-running model that lie behind a dog. It is apparently the speed of the zero-wait state option that trouble Dbase with Dbase IV, Ashton-Tate said. "We have heard of other problems regarding the 50Z," said spokesperson Kem Richardson.

Bill Dunnet, a software consultant currently automating a cassette firm, had the problem on four separate PS/2 Model 50Zs running both PC-DOS 3.3 and PC-DOS 4.0. In each case, his hard disk scrambled, resulting in disconnected sectors and the possible loss of data.

So what is Dunnet to do? Simple. "I am getting Dbase IV the hell off my machines. I have some very expensive data I don't like having meshed around with," Dunnet said. He also said that he plans to reformat the hard disks and go back to Dbase III Plus.

According to Richardson, Dbase IV was tested prior to the availability of the Model 50Z. Dbase IV did not ship until October last year, some five months after the availability of the 50Z.

There is no fix coming for 50Z users from Ashton-Tate. "We don't look at it as being an Ashton-Tate problem," Richardson said, adding that the product is not certified to run on the 50Z.

Computerworld, April 24, 1989

ANALYSIS

Ease, Speed or Power: dBASE IV Developers Must Choose One

By Peter G. Sollins

Ashton-Tate's literature claims that dBASE IV "raises the standard . . . to new levels of ease of use, speed and power." Early users, however, suggest that the means are correct, but the conjunction is wrong; dBASE IV delivers one level or ease of use, or speed or power, but not all at once.

While some users praise the new dBASE for its application-prototyping tools and bundled example-program templates, they also complain about sluggish performance, lack of support for extended memory, difficulty in using the software with local area networks (LANs) and the wait for delivery of Ashton-Tate's dBASE Professional Compiler built especially for dBASE IV.

In sum, dBASE IV users appear to require the power and memory-management capabilities of only an 80386-based PC computer. "dBASE IV just isn't built for the dinosaur machines," noted Ellen Sanders, a Los Angeles consultant and developer.

Particularly distressed are developers who deliver applications on XT-class machines. They say they are dissatisfied with the decrease in speed of certain functions under dBASE IV, compared with the same functions under dBASE III Plus.

"I recently installed dBASE IV on an IBM XT," reported one developer on the CompuServe Ashton-Tate Forum, "and found that it takes 39 seconds to get from menu to menu [with all files compiled], instead of five seconds with dBASE III Plus."

Sanders answered about the drop in performance: "While you can do a few things to speed up your programs, an XT is really not designed for a dBASE IV application with any acceptable speed."

Some cumbersome dBASE IV's speed problems or the product's Application Generator. According to Elliot Small Jr., president of his own consulting firm in Arlington, Va., the Application Generator contains code that slows it down for any command within a user code.

By contrast, programmers who don't rely on the Application Generator need only write the code required to support application-specific alternatives.

"By being many things to all people, [the Application Generator] creates menus that are too slow for most," Small said.

A second complaint lodged against dBASE IV concerns its lack of support for expanded and extended memory. Currently, the product supports neither, although support is discussed in the installation instructions Ashton-Tate produces support is a future endeavor.

dBASE IV's also also poses problems for PCs connected to a LAN. dBASE IV documentation calls for 600K bytes of free memory after loading DOS, more than is available for many PC users connected to a LAN.

Solutions may be available from third-party vendors. Systems with 80386 or 80486 chips can use memory-management utilities, such as 386 to the MAX, from Qualitas Inc. of Bethesda, Md., to free system drivers and utilities to otherwise unused memory above the video buffer (that is, above the 640K-byte limit).

This may be the answer for many users, especially those with Color Graphics Adapter (CGA) displays who can stretch their available DOS memory to THIRTEEN bytes using these utilities. Those with careful memory management, however, PC Week tests of dBASE IV routinely produced messages of "insufficient memory" in the course of a variety of database functions.

To add to Ashton-Tate's woes, the first release of the dBASE Professional Compiler (announced with much fanfare at last summer's Ashton-Tate Developers' Conference in Los Angeles) "has yet to reach the alpha-test stage," according to company spokesperson.

The dBASE Professional Compiler will generate standalone dBASE IV applications and therefore is being eagerly awaited by professional developers.

It is still too early to tell if the drawbacks in the new dBASE are fatal. But there are probably a good many users who will now give serious thought to their choice of a database standard for the next several years; many of them may reconsider their preference for dBASE if

While some users praise the new dBASE for its application-prototyping tools, they also complain about sluggish performance.

PC Week, January 23, 1989

Ashton-Tate To Address dBASE Quirks

By Beth Freedman

Ashton-Tate is planning to air on major electronic bulletin boards the first batch of user-reported quirks in dBASE IV and suggested solutions to the problems, according to company officials.

The first peculiarities to be addressed include a compatibility problem using dBASE IV's new memo-field feature on dBASE III Plus applications; a glitch that freezes the screens if the Ctrl-Break key sequence is activated; and other assorted bottlenecks involving network support and installation, according to Dave Mirck, dBASE IV product manager for the Torrance, Calif., company.

The assemblies will be made public in the next few weeks on CompuServe, The Source and Ashton-Tate's own bulletin board as they are reported by users, Mirck said.

"As is our long-standing practice, we are readying the first set of comments on dBASE IV to post on public bulletin boards," said Lydia Dobyns, vice president of marketing at Ashton-Tate. "However, very few areas are covered. We have heard nothing to believe that dBASE IV is anything less than stable."

Nevertheless, a month after its release, user reports of peculiarities in dBASE IV and features that don't quite work as promised have begun to filter in.

Ashton-Tate has acknowledged the existence of a memo-field problem, which occurs when dBASE IV users open or edit a memo field in a dBASE III Plus application that has been moved into dBASE IV. Once dBASE IV is used on the memo field, that field and its entire record can no longer be accessed from any program, including work-alikes and dBASE add-ons, except dBASE IV.

The lockout is sparking user complaints that possible incompatibilities exist between the two versions.

"The way that dBASE IV handles enhanced memo fields, it's not possible to have compatibility with dBASE III Plus," Mirck admitted.

To work around the problem, he suggested, users should make a copy of the database using the DBMEMO 3 option under the "Copy T" command, adding that this solution has already been documented in dBASE IV's technical manual.

Ashton-Tate also confirmed the existence of a quirk that freezes the screen when Ctrl-Break is activated; users must reboot their machines, Mirck said, and no data is destroyed in the process. The firm is evaluating the problem, he said.

Users have also reported two other potential problems: irregularities in generating calculated fields and a flaw in the mailing-list function that prints a blank line in an address label when one field of information—for example, a company's name—is missing.□

A month after the release of dBASE IV, user reports of peculiarities and features that don't work as promised have begun to filter in.

PC Week, December 5, 1988

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Mainframe legal showdown looms for state of Georgia

BY MARYFRAN JOHNSON
CW STAFF

ATLANTA — Despite a big-iron battle brewing in Georgia state courts over its choice of IBM for a $24 million mainframe upgrade, the state Department of Administrative Services (DOAS) is forging ahead with the installation of a pair of 3090 Model 600E machines.

One 3090 was installed in late June, and the other will be "up and running by late August," said Errol Gold, the electronic data processing staff specialist in charge of purchasing the systems.

Meanwhile, judges have been assigned but no trial date has been set in Fulton County Superior Court for two separate lawsuits filed by the bid losers, National Advanced Systems (NAS) in Santa Clara, Calif., and Amdahl Corp. in Sunnyvale, Calif.

The companies are suing the state of Georgia to have its contract with IBM thrown out because of what they say was a benchmark test skewed in the computer giant's favor.

The mainframes must be able to handle a massive load of the state's computing chores, such as the processing of payroll checks, automobile registrations, tax returns, food stamps and legislative bills.

The contract award was announced in early March. The state's computer system is based on IBM machines, and any new purchases must be IBM-compatible, as are NAS and Amdahl Corp. systems.

"To us, it's just so clear that you had a benchmark whose sole purpose was to measure competitive performance of the machines, and it totally failed in its essential purpose," said Steve Dix, regional counsel for Amdahl in Atlanta.

While not yet part of the lawsuit, IBM is watching warily from the sidelines.

"IBM did not have any information that was unavailable to the other companies," said Michael E. Ross, an Atlanta lawyer representing IBM. "It depends on how this continues whether we will move on behalf of [the state]."

The two-day benchmark testing procedures, conducted last winter, called for each competitor to run a number of state-supplied programs on its machines under typical use conditions.

As the person in charge of the bid process, Gold is a key figure in the eye of the legal storm building against the state. It was his first experience with a major benchmark test.

"From our point of view, we ran a successful benchmark and IBM won," Gold said last week. Each company "had opportunities to try them out, ask questions and get answers. IBM just did their homework very well. Everybody operated under exactly the same rules and conditions."

Opposing views

NAS and Amdahl spokesmen disagreed. The two firms said that what IBM called "fine-tuning" to resolve technical problems is actually an unfair advantage of operating under less stringent rules.

The main technical issues revolve around the use of two different data storage methods during the benchmark run and a dispute over adjustments made by IBM in the "think times," or wait intervals written into the scripts provided by the state.

Who said what to whom during the course of the benchmark tests — and when they said it — will become important issues in the cases, should they go to trial.

NAS is claiming, for example, that Gold and his department "clearly knew of the disparities in the benchmarks," yet did nothing to correct them.

The company has depositions from its own staffers, who say a member of the DOAS benchmark team remarked after the test runs that NAS could have improved its score by making changes in the computer think times.

However, nobody gave the information about the changes to NAS because DOAS Deputy Commissioner Robert Allen, the state's benchmark team leader, "had instructed that NAS not be informed of their nature," according to NAS court documents.

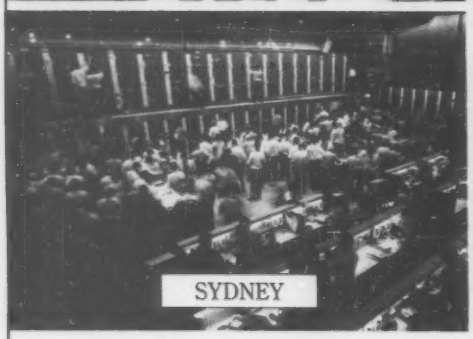
So far in the case, the bid losers are down for two counts. First, the Georgia state attorney general's office found no evidence of criminal activity and refused to pursue a NAS request to investigate the case.

Then, on June 23, a Fulton County judge rejected a plea from both companies to halt installation of the two new mainframes.

"We are always weighing our options," said Chuck Mulloy, an NAS spokesman. "When you lose a bid, you want to understand why, particularly when you've gone in with one nearly $7 million less than IBM's. It causes you to be curious."

Amdahl says acceptance of its bid would have saved state taxpayers $3 million.

Both companies learned the particulars of the benchmark test results through the discovery process of the state Open Records Act.



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COMPUTERWORLD

Cincom offers PC option for Mantis

BY ELLIS BOOKER
CW STAFF

CINCINNATI — Users of Cincom Systems, Inc.'s 6-year-old Mantis application development system recently gained the option of using a personal computer or a terminal. The company said last week it has begun shipping a PC-based implementation of Mantis that it said can be used as a workstation for creating Mantis applications for a PC or a mainframe or as a processor for running existing Mantis programs.

Version 1.1 of Mantis for the PC, which completed beta testing in May, contains all the interactive testing, debugging and prototyping facilities of the mainframe version of Mantis, according to Cincom. But a PC platform — the product supports Intel Corp. 80286- and 80386-based machines — is one-seventh the cost of using even a small IBM 9370 as a development platform, Cincom said.

In addition to the development product, the company announced an execute-only version of Mantis for the PC that will run host Mantis applications on a PC.

Irwin Bernstein, vice-president of planning and administration at Maidenform, Inc. in Bayonne, N.J., said the new product interests him. However, he said he is not sure he would move his seven application developers, now writing code for an IBM 4381, onto PCs.

"I'm not sure of its applicability. I'm not sure why I'd buy PCs and software to do the work we already do on-line" with the mainframe, said Bernstein, an early user of Mantis.

Mantis for the PC requires MS-DOS Version 3.0 or higher and at least 5M bytes of hard disk space and 1.5M bytes of random-access memory, as well as Digital Communications Associates, Inc. Irma or fully compatible 3270 emulation boards to migrate Mantis entities between the PC and the mainframe.

An OS/2 version of the product is reportedly in beta testing and will be available within 60 days.

Pricing for development configuration is $3,750; the execute-only version of Mantis for the PC is $1,125, Cincom said.

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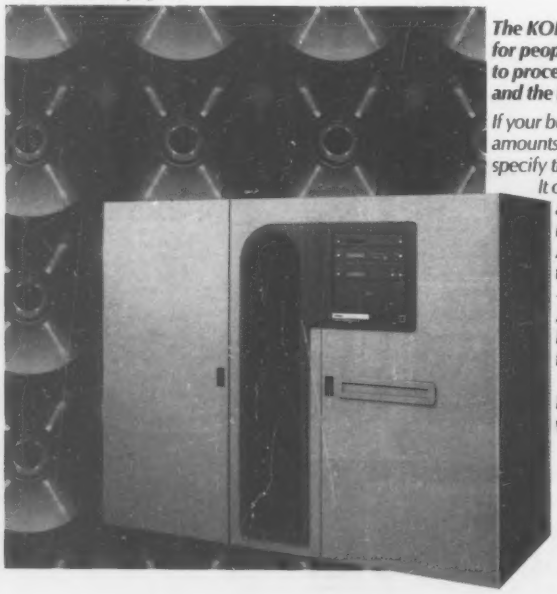

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Apple to sell its shares of Adobe stock

BY JAMES DALY
CW STAFF

CUPERTINO, Calif. — In a move that foreshadows a battle for the page-description language market, Apple Computer, Inc. announced last week that it will cash in all 3.4 million shares of its stock in Adobe Systems, Inc. In addition to reaping almost $90 million in profits on its investment, Apple indicated that it may eventually compete head-to-head with Adobe's line of electronic publishing offerings.

Apple is expected to announce an alternative interpreter for Adobe's Postscript page-description language as well as competing font software sometime between the spring and fall of next year.

Also, Apple is negotiating with other font trademark owners to obtain licenses for use with Apple's computers, font software and printers. The sale will load nearly $91 million into the coffers of Apple, which purchased the issues in November 1984 for about $2.5 million.

Although Adobe's stock took a loss on Wall Street when the announcement was made last Thursday (see story page 119), Adobe officials downplayed the financial consequences of Apple's move. A spokesman for the Mountain View, Calif.-based company noted that the total revenue represented by Apple has declined from 84% in fiscal 1986 to 29% for the first half of fiscal 1989.

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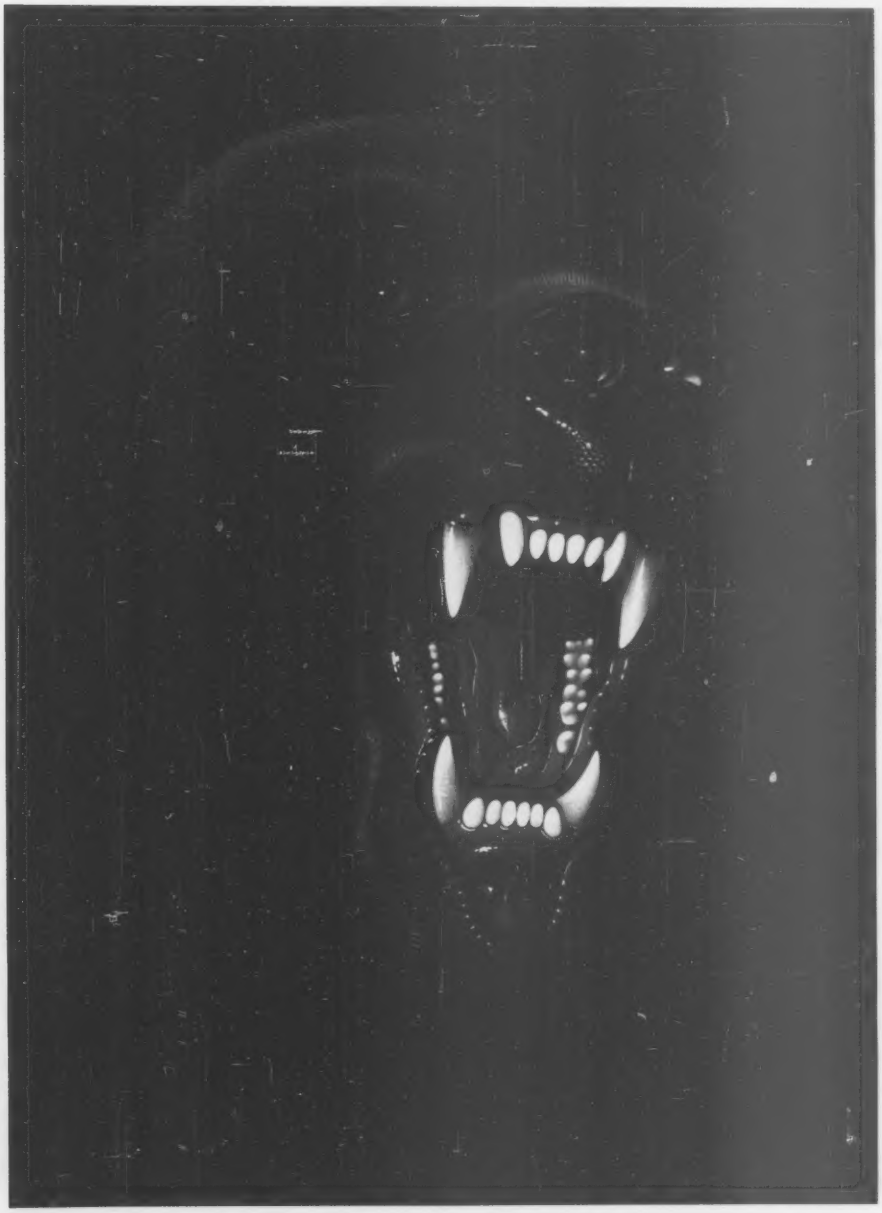

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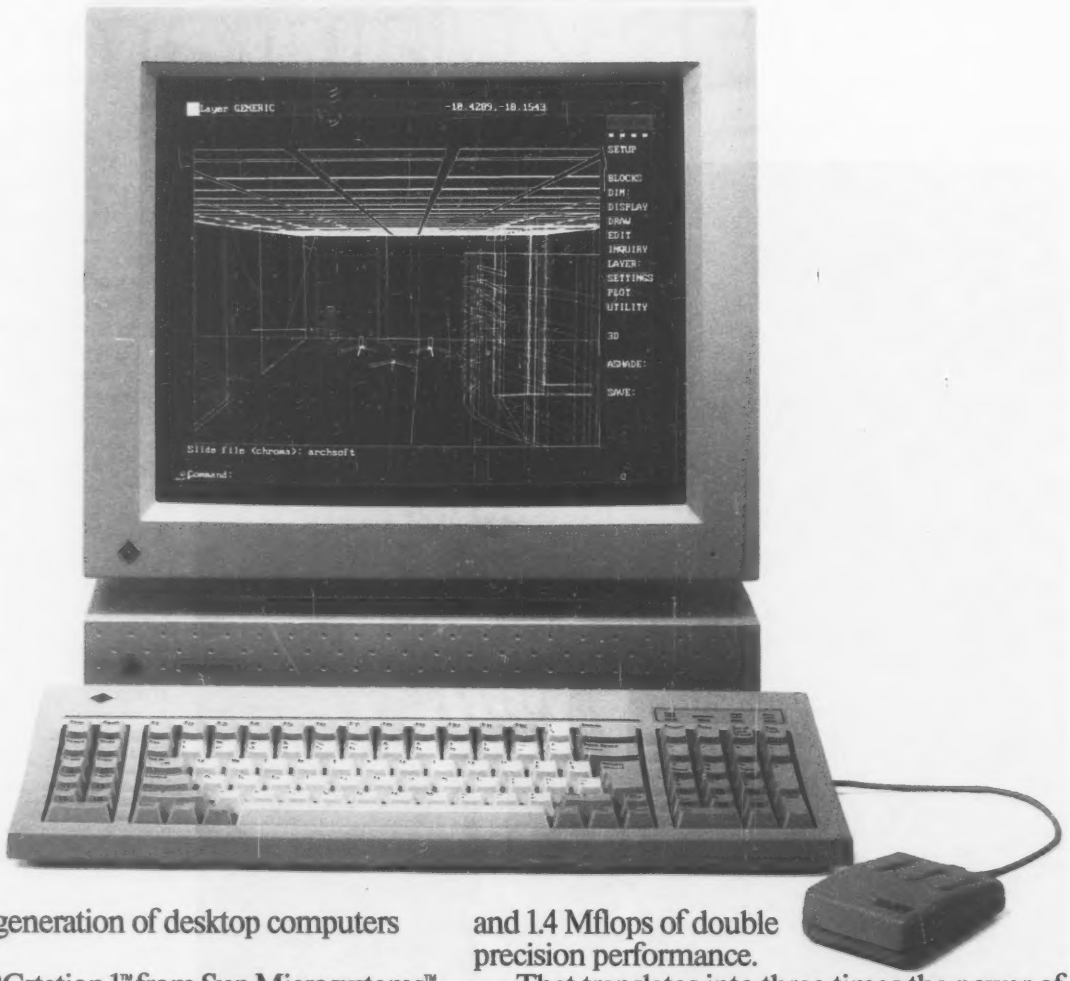
SPARCSTATION 1.
POWERFUL DESKTOP



The next generation of desktop computers is here today.

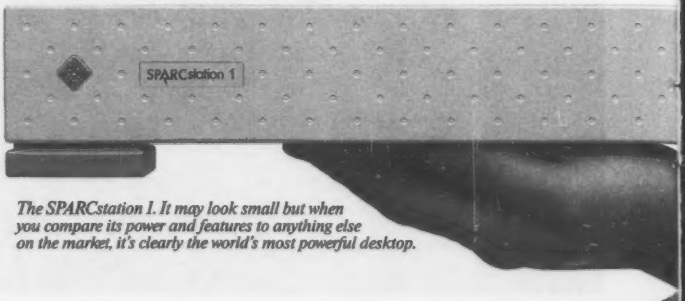
The SPARCstation 1™ from Sun Microsystems.™

A miracle of RISC miniaturization, integration and innovation, the SPARCstation 1 sets a new benchmark of price, performance and functionality by which all others must be judged.

Simply put: for less than $9,000,* the SPARCstation 1 gives you more power integrated with more features than any other desktop computer in the world. Making it the world's most powerful desktop.

The SPARCstation 1 is smaller than an IBM PC yet it gives you 12.5 Dhrystone MIPS and 1.4 Mflops of double precision performance.

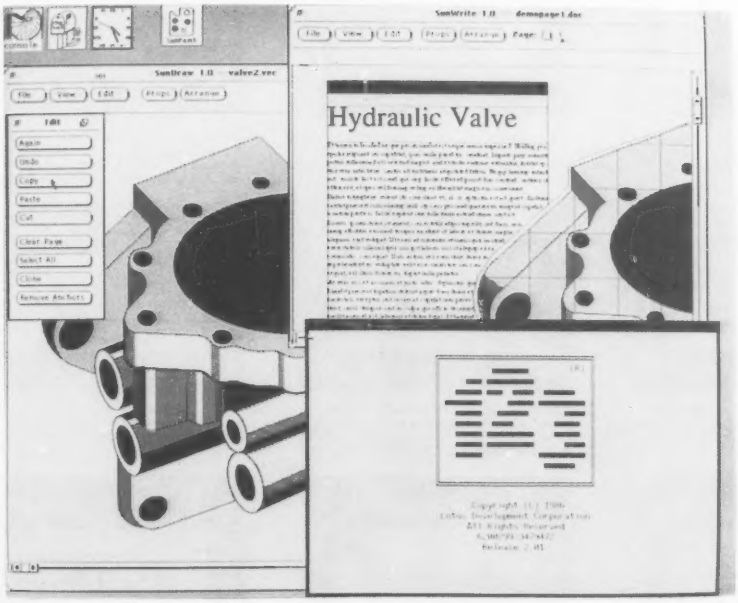
That translates into three times the power of the most fully loaded and hotly accelerated PC or traditional workstation.



The SPARCstation 1. It may look small but when you compare its power and features to anything else on the market, it's clearly the world's most powerful desktop.

*The US list price for one SPARCstation 1 with a 17-inch monochrome/grayscale display and eight megabytes of main memory. Possibly the best desktop computer deal in history. Of course, SPARCstations are available in a variety of configurations to satisfy the needs of different users.

THE WORLD'S MOST FOR THE PRICE OF A PC.



OPEN LOOK™ gives you all the power of UNIX® with an interface that's as easy-to-use as the easiest-to-use personal computer. Point at an icon, click the mouse button and your SPARCstation 1 goes to work at blinding speeds. Shown here SunWrite, SunPaint and SunDraw working with Lotus 1-2-3.

The SPARCstation 1 comes packed with a full eight megabytes of RAM. Expandable up to 16 megabytes. With your choice of a high resolution monochrome/grayscale or color display.

It integrates up to 208 megabytes of hard disk storage. A 3.5 inch IBM compatible floppy disk drive. Built-in 32-bit Ethernet. A blindingly fast SCSI connection. Expansion boxes for up to a gigabyte of additional disk or tape storage.

And it's all enclosed in a 16 inch square box that consumes less energy than a 100 watt light bulb.

If you still need more, there is.

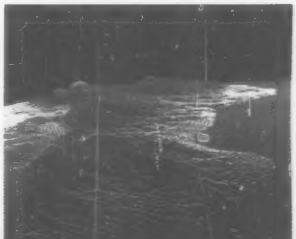
The SPARCstation 1 is the ideal machine for voice mail and multimedia applications. It has its own built-in speaker and microphone jack to record and playback music, voice or any other sound you like to hear.

And with our high-performance GX Series, the performance curve goes right off the chart.

A major technological breakthrough in computer graphics, our SPARCstation 1 GX produces up to 400,000 vectors a second. Giving you two times the graphic performance of any machine twice its price.

And it doesn't just speed up 2D and 3D wire frame applications, it speeds up the overall performance of your system. Including windowing and scrolling through text.

And the list of firsts goes on and on.

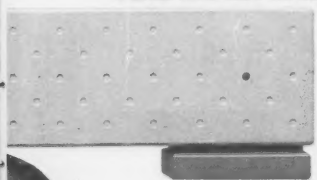


For 3D applications, the SPARCstation 1 GX lets you interactively manipulate 3D objects at speeds that make ordinary workstations seem downright sluggish.

What's more, the SPARCstation 1 is a member of a whole family of SPARCstations and high-capacity SPARCservers.™

To hear all the details on the world's most powerful desktop and the other members of the SPARC family, call 1-800-223-6736. Or in California, 1-800-322-6736.

And get ready to set off a few sparks of your own.



The SPARCstation 1 has a new very high speed bus that delivers many times the performance of a MicroChannel architecture. Which makes it very easy for your SPARCstation 1 to expand, connect and communicate with other devices. From Laser Printers to Ethernet gateways.

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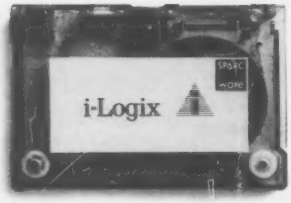
CADRE provides software tools and integrated systems to manage and automate the design, code generation, and test of high-performance systems and software worldwide.

CATS Software has systems in operation on over seventy trading floors in twelve cities globally. A market leader in the development of financial software for fixed income derivative instruments.

Formed by the merger of Daisy and Cadnetix, DAZIX provides the richest set of CAE/CAD/CAM tools in the EDA industry. DAZIX EDA tools also support the industry's most widely accepted standards.

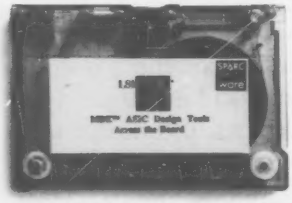
HHB develops, markets and supports design analysis systems used by electronics engineers. The company's products automate the design and test of integrated circuits, printed circuit boards and systems.



Statemate is the premier graphic computer-aided systems engineering tool for modeling, simulating and prototyping complex systems during specification. Users are leading Fortune 500 companies.

IMSL mathematical and statistical FORTRAN subroutine libraries reduce development time while increasing the accuracy and robustness of FORTRAN applications. IMSL makes FORTRAN more useful.

ART,™ the Automated Reasoning Tool® from Inference. Proven and powerful software technology for building and delivering expert systems that solve business problems.



Over 6,000 ASICs have been designed using LSI Logic's MDE tools with a Right-First-Time™ record. MDE tools can design ICs with up to 200K gates on a chip and entire systems of over two million gates.

The MacNeal-Schwendler Corporation has been serving the engineering community for over 25 years. Today, MSC/NASTRAN is the most widely-used engineering analysis program in the world.

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Major corporations worldwide are building knowledge-based systems with NEXPERT in finance, MIS/DP, manufacturing, and other industries. NEXPERT brings embedded intelligence to mainstream applications.

ParcPlace Systems is dedicated to improving the productivity of software development and maintenance in commercial organizations providing Smalltalk-80 and C++ object-oriented programming systems.

PHOENICS is the leading general-purpose software system for simulation of fluid flow, heat transfer, combustion and chemical reaction processes in mechanical, environmental or biomedical studies.

Saber-C is the complete C language programming environment. It improves programmer productivity and software quality during the implementation, testing and maintenance phases of software development.

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SYBASE, the leading high performance relational database management system for on-line applications, features an advanced Client/Server Architecture with Window-Based, 4GL Development tools.

TeleGen2,™ TeleSoft's Ada compilation system, offers a full-featured set of integrated tools for developing efficient, reliable ADA applications on all Sun platforms.

This is just a small sampling of the more than 500 SPARCware™ solutions available today. Which means you can immediately unleash the full power of the new Sun SPARCstation™ 1. If you would like to see more detailed information on any of these products

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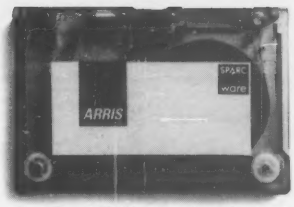
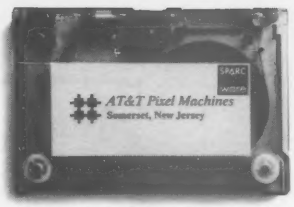
The Inspire™ erasable optical storage system lets you store 594 Mbytes on an ISO-standard, 5¼" removable cartridge. Rewritable and reliable, Inspire looks like any other disk drive to your Sun.



Sigma Design's ARRIS software offers architects and facility managers extensive 2D and 3D capabilities with UNIX flexibility. ARRIS is available through a world-wide distribution network.



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FrameMaker® 2.0. Powerful, accessible publishing software that combines full-featured word processing, graphics, page layout and book-building tools for creating publication quality documents.

Harris Scientific Calculations produces the SCICARDS® System for printed circuit board design. SCICARDS features 100% routing and many interfaces to companion tools for the total PCB design solution.

Informix Software Inc., develops and markets high-performance relational database management and office automation software for manufacturing, financial services, scientific and related industries.

INGRES combines superior application development and information management products that meet the challenges of performance and accessibility important to today's organizations.

Software through Pictures™ delivers the promise of CASE by being the only integrated, multi-user CASE environment for all Sun architectures (Sun-3, Sun386i and SPARC machines).

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Mercury's RISC-based 32 & 64-bit floating-point attached processors deliver up to 10 times application performance gains, and feature C & Fortran compilers, vector preprocessor, and math libraries.

PSpice, MicroSim's electronic circuit simulator helps engineers analyze and refine designs. With over 8,000 installations, more EEs use PSpice than all other commercial SPICE-simulators combined.

Quickly and easily input photos, drawings and logos to your electronic publishing documents with Microtek's ScanVu-300 and ScanVu-400 grayscale scanning systems. Compatible with all Sun platforms!

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Shinko printers make color prints & overheads easy to obtain. Shinkotool network software and 300 DPI A & B size printers and new 400 DPI scanner are available by Mitsubishi Int'l Corp.

For integrated circuit design, SCS offers a broad line of high-performance software tools. Leading semiconductor, aerospace and computer companies have chosen SCS for their state-of-the-art ICs.

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Viewlogic's Workview is the "open" CAE system that specializes in integrating into existing environments. A Workview/SPARCstation 1 combination delivers the best CAE tools on the best desktop workstation.

The world's most popular word processor is now available for Sun systems. WordPerfect 4.2 provides dozens of high-end features for a variety of word processing applications.

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EDITORIAL

Zzzzz . . .

THIS COUNTRY HAS been caught napping on more than one occasion, and at times that has led to some severe consequences.

Military history provides some notable examples of our propensity to snooze at the wrong times. After World War I, the nation's military strength was allowed to languish to the point of atrophy. Despite the rising tide of fascism around the globe, we slumbered through the 1930s, comfortable in the belief that no one would be crazy enough to start another world conflict. Then came December 1941, and Rip Van Winkle was shocked into seeing the world as it had become.

The major wars of tomorrow, however, will likely not be won or lost on a traditional field of battle. Instead, they will be economic wars fought by the superpowers such as a united Europe, the U.S., Japan and the emerging powers of the Pacific Basin.

As we have often stated here, the single most effective strategy in this conflict is the deployment of information systems resources by the corporate armies of the competing nations. How aggressively these and other resources are readied and deployed is directly proportional to how seriously the conflict is taken.

Unfortunately, there are growing signs that our state of preparedness is reminiscent of the U.S. 50 years ago at the dawn of the most costly war in history.

Last week, the World Economic Forum of Switzerland published a ranking of the relative competitiveness of 32 developed nations. The results were based on responses from nearly 2,000 business executives worldwide who rated both tangible and intangible competitive factors.

The U.S. placed third overall behind Japan and Switzerland. All right, so most people these days would probably agree that we are not the world economic leader we once were.

But the categories in which the U.S. performed poorly included innovation and the ability to look ahead at future opportunities. We ranked ninth overall in the category of "outward orientation," a key to competing in the global markets of the 1990s.

Couple these findings with other reports published last week that said U.S. businesses are showing little concern over the prospect of a "soft-landing" of the economy (i.e., a gradual grinding to a near halt of growth as opposed to a recession). Then ask yourself this: Do you think the Japanese and Europeans are gearing down for no growth in the 1990s? Or are they more likely to be thinking in terms of exploiting the creeping somnolence that is slowly infecting this country?

There is so much that needs be done on the national front to stem a further slide in rankings among world powers. Whatever is done must begin with commitments made not by businesses or the government but by individuals learned enough about the past to recognize the potential perils in the future.

LETTERS TO THE EDITOR

Up with downsizing

"Size is beside the point — all that really matters is fit" [CW, June 12] contained the standard arguments against downsizing. While they represent the conventional wisdom, they are also without substance.

Your story stated, "No one yet has a truly distributed database with distributed update." We do at Echlin. The tools have existed for several years to set up such databases. It is much easier to distribute a database across several file servers than to distribute a database across multiple disk packs attached to one mainframe under MVS.

You also claimed that while the CPU power on networks might compare to what is available on mainframes, mainframes are still needed for certain tasks because they can access data faster and their data throughput is greater. False. Networks are faster. Data is easier to distribute so you can create more paths to it and increase your effective bandwidth. RAM is much cheaper, so more data can be cached.

Finally, with so many more MIPS available, you can change designs to minimize data bottlenecks. We have used these techniques at Echlin to provide better network I/O performance than we had with our mainframe.

Because of microcomputing's overwhelming cost advantages, it is inevitable that mainframes will be downsized in the 1990s. While making this change will not be easy, those who overcome the obstacles that may arise will realize great benefits.

Steven A. Gold
Manager
Systems and Programming
Echlin, Inc.
Branford, Conn.

Broker beware

Regarding "Selecting a winning broker" [CW, May 29], I believe that more harm than good may ensue from your advice and observations.

You failed to mention some truly significant issues surrounding the "independent" contractor issue. The article alludes to the option of working as an independent contractor ". . . in spite of Section 1706 . . ." Perhaps for the sake of the well-being of the laborer, you should include information on 1) how to do it — in detail, 2) what the most recent IRS posture is, 3) penalties and recent letter rulings on the subject, and last, but not least, 4) the impact on clients and contractors should the IRS audit for compliance.

Additionally, the article totally neglects the Employment Development Department (EDD), which audits for misclassified employees. These audits lead to employer fines and, in some cases, criminal actions, which affect our entire industry image. Of course, EDD communicates with the IRS to add to the "Big Brother" scenario, and all this boils down to Trouble, with a capital "T," and that stands for TAXES.

For the sake of all professionals within our industry, we need well-rounded, balanced facts, not a continuous stream of speculation, inaccurate and incomplete information and misleading suggestions and intimations. Nobody wins when both labor and users are too frightened to do business and are constantly misinformed through half-truths.

Nino Posella
Executive Vice-President
Amtec Systems Corp.
Los Angeles

No Siemens combo

"Siemens' bid for market" [CW, May 1] implied that our PBX business would be organizationally combined with our central office switching business.

The Siemens central office business is not part of the Siemens Information Systems organization. The central office market is served by Siemens Public Switching Systems, Inc., a separate firm that markets products exclusively to the telephone operating companies. There is no intention to combine this organization with any Siemens PBX-related business.

Susan Gauff
Director
Corporate Communications
Siemens Information Systems

Apples = oranges?

In the letter to the editor "Apples and apples" [CW, April 10], its author used "apples to oranges" as a simile, intending to compare dissimilar things. If you were to compare the density, porosity, specific gravity, conductivity, permeability, permittivity, Vitamin A, B and C content, pH, size, weight, geometry, price and desirability thereof, you would see that apples and oranges are truly more similar than dissimilar.

Barry Merrill
President
Merrill Consultants
Dallas

Computerworld *welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Laberis, Editor,* Computerworld, *P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701.*

Keep high-tech link to China

PAUL GILLIN

Congress and a majority of Americans have reacted to the slaughter in China on a gut level, calling for trade sanctions and a withdrawal of foreign investments.

Understandable as that may be, our high-tech investments in China may ultimately be the best thing that the country's fledgling democracy movement has going for it. By continuing to populate the classrooms and offices of China with computers, we drive the dictatorial government deeper and deeper into the hole it has dug for itself.

The gerontocracy that rules China is facing a vexing problem of its own creation. On the one hand, it desperately wants foreign investment — particularly high-tech investment — to ensure that China does not sink further into a Third World economic morass.

On the other hand, it must suppress the kind of information-enabled democratic ideas that emerge when people, computers and communications come together.

The Chinese government is poorly equipped to deal with this dilemma because it understands so little about technology. It displayed that ignorance shamefully in the days leading up to and immediately following the butchery in Beijing. First, it allowed the demonstrations to build momentum while network TV cameras rolled. Then, it wheeled in soldiers to fire into the crowd, apparently without giving the slightest thought to the electronic press corps that was transmitting live pictures of the event.

Gillin is *Computerworld's* executive editor.

Delayed reaction

In the weeks since the massacre, the government has responded slowly to quash the electronic underground that quickly rose to transmit news of the events both into and out of the country. For more than a week after the bloodshed, fax machines continued to send information between the U.S. and China with relative ease.

Recent reports say that the government is now taking the ridiculous step of stationing soldiers next to every fax machine in the country to monitor transmissions. Scrutinizing faxes is one thing; standing guard over every satellite dish, modem and telephone is quite another. How long can a country with China's economic problems afford to maintain this shaky kind of order? Can the leadership really be so helpless in coping with the technical infrastructure it has allowed to spring forth?

To the ruling elite in China, the Tiananmen massacre is just one more purge of "counterrevolutionary elements," the kind of bloody cleansing that has taken place every 10 years or so since the communists took power. To those leaders, foreign condemnation of their actions amounts to meddling. Their attempts to turn international outrage back on their accusers and to skew casualty figures from the June 4 massacre are pathetic. They cannot comprehend that technology has turned China's internal affairs into an international incident.

The response is understandable, though, in light of the Party's genealogy. It has traditionally drawn its strength from the rural population — 70% of which is illiterate — and directed that anger back against the educated urban elite. Education is the enemy of the communist government. Intellectuals have been the target of every purge in its 40-year history. In Tiananmen Square and the courtroom monkey trials that followed, university students were again singled out for the first bullets.

NICULAE ASCIU

Unfortunately, education is also the base on which economic progress is built. China has painted itself into a corner: It is encouraging technology to migrate to its shores while repelling the ideas that technology engenders. No government has yet reconciled an authoritarian system with advanced use of information.

The Soviet Union, for example, is so primitive in its application of computer technology that it has long resorted to smuggling off-the-shelf equipment from the West to feed its own research and development labs. Computers in communist countries are tightly controlled so that they can't be used for subversive activity. Information is the enemy of a totalitarian regime.

China's government would like to have it both ways, but it can't. If it is to modernize industrially, it must build an information infrastructure, and information, as the Soviet Union has found, promotes change.

So far, computer firms have let the profit motive outstrip moral indignation. While most have withdrawn their American employees from China, they have maintained shipments. They should be allowed to continue. The presence of American high-tech firms in China is a constant reminder to the government and the people that the tools of progress are within their grasp. To sever that link would only serve the interests of officials who thrive on ignorance.

This is the wrong time for Western high-tech dollars to withdraw from China. The leadership's continuing thirst for technology will ultimately be its undoing.

Japan's trade exposition: In quest of home sweet home

CHARLES P. LECHT

The slogan was everywhere — "In Quest of Best Human-Oriented Offices." It was one of those Japanese exposition catchphrases that just doesn't translate from Japanese into English too well, but we know what it means. It graced the scores of posters and banners that marked the huge site of Japan's largest computer and communications exposition, the "International Business Show '89" held at the Harumi International Fair Grounds in Tokyo, May 17 through 20.

You really had to be in quest of something extraordinary to brave the gigantic crowds and use the awful transportation facilities available to those who wished to attend the show. But if you were after something unusual, it was worth the trouble. Both the exhibits and their product offerings were the richest in diversity that I have ever seen at a trade show.

Lecht is an IDG News Service correspondent based in Tokyo.

There were more than 300 exhibiting companies from all over the globe, although most were Japanese. Approximately 100,000 square feet of floor space (compared with more than a million square feet in Chicago's McCormick Place) was crammed with more than 100,000 people per day. They arrived by car, bus, boat, ferry, and thousands came by foot. Harumi is two kilometers from central Tokyo.

Just like home

Official show literature further explained the show's "In Quest of . . ." catchphrase. The intention is to convey the concept of "feeling at home" in an urban office. For anyone living and working in Tokyo, the very idea of working in an office that has the ambient feeling of a home is a compelling one. No matter how crowded the homes of most Japanese people are, the office space these same people usually occupy suffers by comparison. Tokyo has the highest priced real estate in the world, approximately four times that of New York at upwards of $300 per square foot.

We are told that the quest is for offices that are "ergonomically designed and fashionable" while at the same time allowing for maximum productivity. Office space should "relax the mental and physical stresses of work, refresh the senses and store up energies for new work and communication."

There, before our very eyes, were thousands of devices and supplies intended to support its theme. I say "intended" because it would be hard to reconcile some products with the kind of peace of mind one expects to get at home — for example, the computer-controlled four-color printing press, digitizer, computerized cash register and the electronic time-card machine.

Nonetheless, a person interested in technology could not help but be impressed with the creativity expressed; everything done by human hands in an office was a target for automation. From the simplest of devices needed to, say, affix a label on a box, to the largest computer systems commercially available in Japan, everything was there.

After four days of roaming the fairgrounds, I felt as if I were in a raging blizzard of techno-economic change and saw no signs of its abatement. It was clear that new product offerings were streaming into our computer world at an ever-faster pace, and old products were undergoing such swift change that they were no longer categorized as either hardware or software but as "fluidware." The waves of techno-economic change that raged at the start of the 1980s appeared calm ripples in comparison to those I saw at the show.

Increase diversity

Undeniably, much good is served by increasing diversity in product offerings. The availability of improvements to yesterday's products has to comfort their purchasers no matter how swiftly these arrive. These improvements show a continuing commitment by the manufacturers to their past offerings. Undergoing the swiftest change of all seems to be the desktop computer; It flows toward increasing power and decreasing cost at ever-increasing speed.

When and where to jump into the stream is the question. All this change is unsettling too. It can have a shattering effect on the nervous systems of users who must make product investments but fear that no matter what they buy, they will soon appear uninformed if not imprudent. However, it is better to risk this than the nerve shattering that accompanies an increased work load without the tools to handle it.

As I left the show, I wondered what its international impact would be. The Japanese really dislike their label as workaholics, so they use international trade fairs as an occasion to disprove this. That's why such shows offer themes with lofty ideals like "In Quest of Best Human-Oriented Offices." With the winds of trade war blowing once again this summer, they are especially sensitive.

I wondered if this year's theme may not backfire. Making the office more like home may lead some critics to conclude that Japanese workers will ultimately elect never to go home.

It occurred to me that if U.S. Trade Rep. Carla Hills gets wind of this possibility, she may list the show's quest as another one of those anticompetitive abuses by Japanese industry of U.S. industry. Be this as it may, not to worry, Carla. The quest for the best human-oriented office will be fulfilled only when the diversity of products available exceeds the diversity of people who must work in it. This isn't likely to happen soon in Japan.

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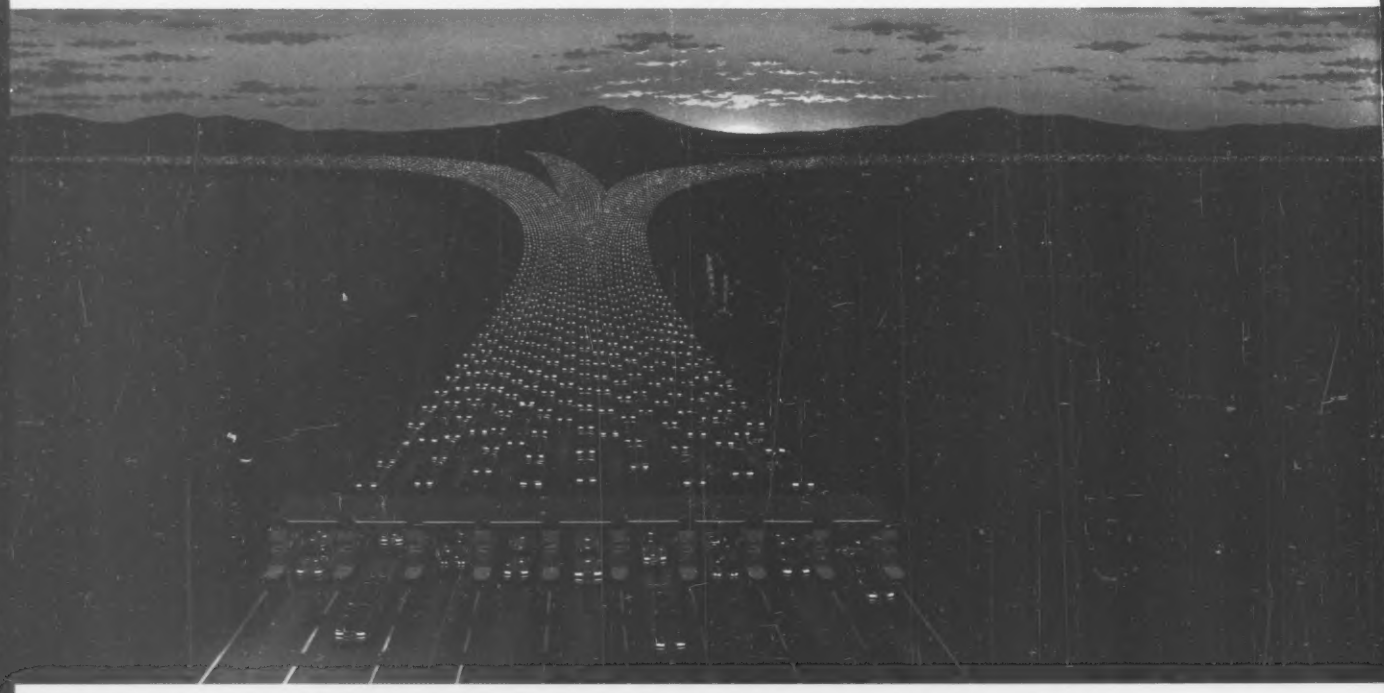

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CW

SOFT TALK

Stanley Gibson

When open means closed

Why are organizations that establish standards called "open" even though they always hold closed meetings? That is, meetings closed to those not invited and especially closed to the press.

Recently, X/Open Consortium Ltd. held a major meeting for users in Montreal to draw out of them what they would like to see X/Open do. While asking the user community their opinion about standards is laudable, the public will not know for several months what transpired there.

That's because the meeting was closed to the press. X/Open Chief Marketing Officer Steve Lowen did visit various journals afterward but would not discuss what topics came up at the meeting. Lowen would only say that a report will be issued in a few months.

Why can't the press cover these meetings? The reason given is that no one would speak their mind if they knew what they said could possibly appear in the newspaper, to be read by thousands.

The Open Software Founda-

Continued on page 27

VAX growth lures tool vendors

Opportunities exist to serve need for increasingly complex solutions

ANALYSIS

BY AMY CORTESE
CW STAFF

Digital Equipment Corp. has long touted the relative ease with which its VAX/VMS systems can be managed — especially when compared with the more cumbersome IBM MVS operating system, well-known for its intricacies.

However, with more powerful VAXs taking on larger commercial applications in recent years, DEC is closing IBM's lead on complexity, and software vendors are rushing to provide users with tools to manage their increasingly unwieldy VAXs.

"As the VAX software becomes richer, it also becomes more complicated," said Stan Rose, a vice-president at Bankers Trust Co. in New York. Rose said that at Bankers Trust, while there are still fewer systems programmers per VAX than IBM machines, VAX programmers are becoming more specialized. As a result of the increasing power of VAXs, especially in clusters, more applications are run on them, and accounting and chargeback facilities are needed, Rose said. Additionally, Rose noted that storage requirements have grown from one or two removable disks to 50 or 60 fixed disks, creating a need for better management of storage and organization of files.

During the past several months, new players, eyeing what they see as a burgeoning market, have joined the handful of firms providing software utilities to help manage VMS systems. Noting the success of Computer Associates International, Inc. and a host of other companies providing systems software for the IBM mainframe market, these firms believe growing demand will support a similar third-party market for DEC systems software.

Traditional mainframe software vendors have recognized this and are moving to fill the gap. BGS Systems, Inc. recently introduced its Best/1 performance planning tool for the VAX. Additionally, Legent Corp., the company formed by the union of Morino Associates, Inc. and Duquesne Systems, Inc., has an agreement with UK-based UIS Ltd. to build a bridge between UIS' VAX tools and Legent's IBM-based ones.

CA eyes DEC market

Perhaps most prophetic is CA, the Goliath of the IBM mainframe software world. With the introduction of three VAX-based security and job accounting products during the past year and the pending acquisition of Cullinet Software, Inc., CA has made it clear that it views the DEC market as attractive. A CA spokesman recently affirmed that the company plans to expand its DEC VAX offerings.

Subhash Agrawal, director of advanced technology at BGS, said that many of the firm's existing IBM customers are also VAX customers. In the past, VAX systems were managed in an ad hoc fashion, but as VAX systems and applications grow more complex and are used more for commercial processing, their management is becoming more professional. "Many large customers with formal capacity planning are calling on their IBM staff to do DEC planning," Agrawal said.

The anticipated introduction this year of DEC's Aridus mainframe-class VAX may spark demand for systems management software. "If Aridus is a mainframe and expensive with a lot more memory and storage, there will definitely be a need to manage it," said Bob Desautels, a software research analyst at Framingham, Mass.-based International Data Corp.

Desautels said that in the past, DEC hardware has been relatively inexpensive, so that users would often opt for increased capacity rather than additional software and personnel. But with a cost-to-benefit ratio

Continued on page 27

VMS leaders

The following are key entries in the VMS management arena:

- **BGS Systems, Inc.** Traditionally focusing on performance analysis and capacity-planning software for the IBM market, BGS' new product is Best/1-VAX.
- **Digital Equipment Corp.** recently announced a new version of its VAX Software Performance Monitor and the DEC Capacity Planner, a product designed to project future resource needs.
- **Demax Software.** Formed in April, Demax is a new company intended to provide VAX system utilities. Created by a management buyout of Demac Software, a Canadian supplier of disk-management tools for the VAX, and from the acquisition of a performance-tuning product from Touch Technologies, Inc. in San Diego.
- **UIS Ltd.** UK-based supplier of VAX systems management tools, increasing its presence in the U.S., mainly through the acquisition of American Management Co. (from Morino Associates, Inc.), Software Techniques, Inc., and the PACS Plus product line from Signal Technology, Inc. Products include archive management, disk and storage management, resource accounting and chargeback.

Inside

- Rockwell's paperless library takes off. Page 25.
- It's real-time, it's on-line, it's BMC's DB2 Activity Monitor. Page 25.
- Ultimate's latest operating system out. Page 30.

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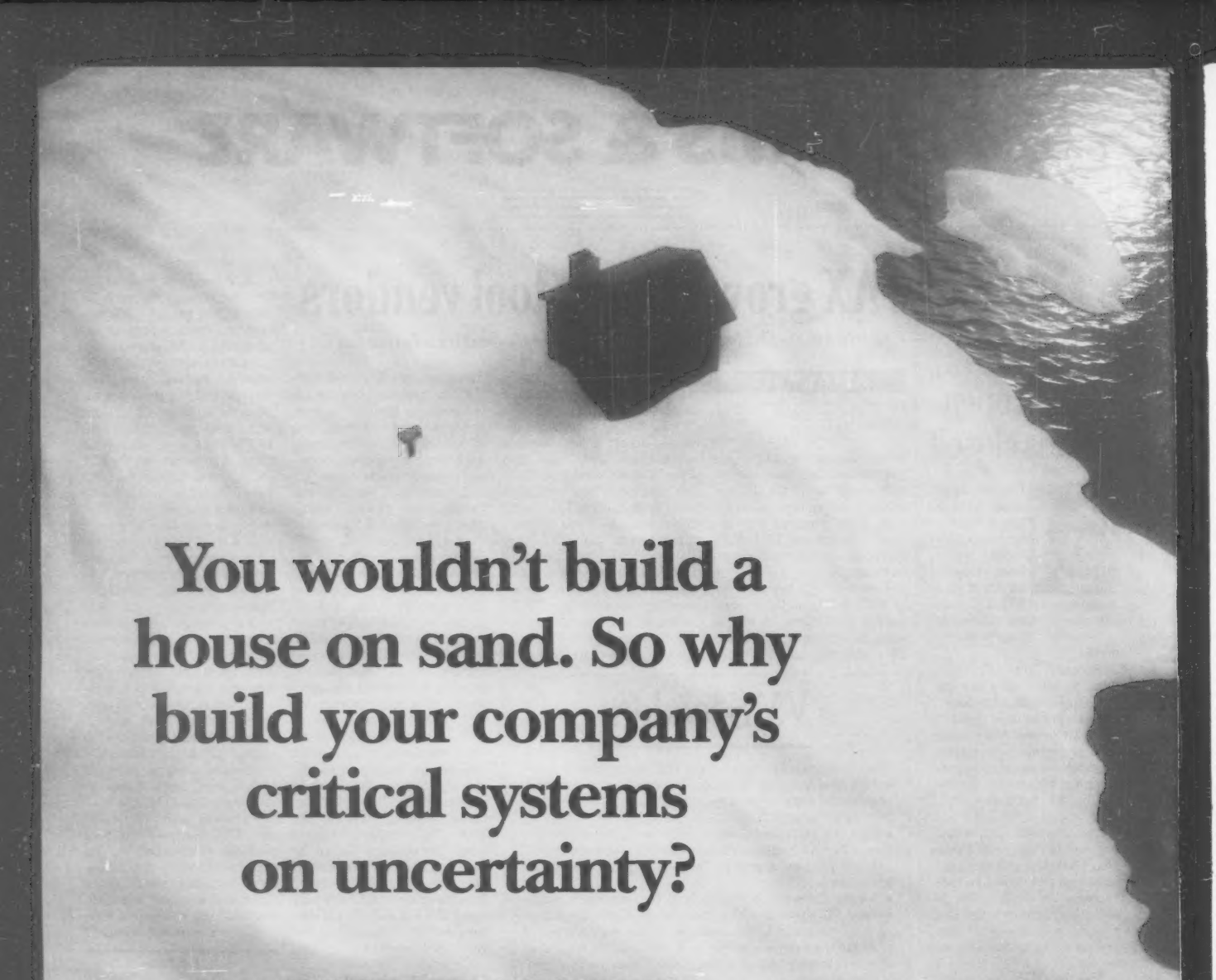

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First step for paperless library

Rockwell Technical Information System links employees throughout U.S.

ON SITE

BY JULIE PITTA
SPECIAL TO CW

You've heard of the paperless office; now comes the paperless library.

Rockwell International has taken an initial step toward that concept with its Rockwell Technical Information System (RTIS). There are no card catalogs. In their place is a computer database. Traditionalists, however, can still obtain publications that are printed and bound.

This computerized library has not only eliminated dusty reference shelves, but it has also allowed Rockwell employees throughout its U.S. divisions to share information.

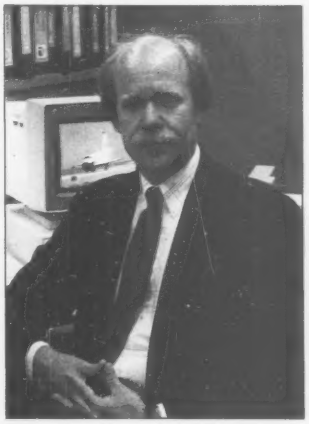
Making connections

An engineer at the Space Transportation Systems Division in Southern California can log on to RTIS, enter the subject he is interested in, and a list of all the reports, trade publications and any other pertinent material will appear on the screen of his computer. He may discover that a colleague at Rockwell's automotive division has written a paper on an aspect of engineering design in which he is interested.

"People may be in different divisions, but there's overlap in the kinds of jobs they do," said Judy Leavitt, a librarian at Rockwell's Avionics Division in Cedar Rapids, Mich. "Things become so interdisciplinary. An engineer here may want to see a study used by the engineers at the space or rocket divisions.

"It's a corporatewide database," Leavitt continued. "That's the beauty of it."

There are an estimated 250,000 documents listed, pooled from Rockwell's 14 libraries. Entries can be called up more than 100 ways. As with traditional card catalogs, they can be found by entering subject, title or author. Users can also look up documents through the report number, key words in the text and the division in which the item is being held.



"IT'S LIKE executing a batch file. We don't need a front-end processor because it's a pretty high-powered mainframe and we don't put heavy transaction systems on this machine."

ROBERT BRAYTON
ROCKWELL

The foundation of the system is Basis, a text information management system developed by Information Dimensions, Inc., a Batelle Memorial Institute subsidiary based on Dublin, Ohio. According to Robert Brayton, a systems specialist at Rockwell's Information Systems Center in Seal Beach, Calif., Rockwell customized the system to include multiple divisions.

RTIS runs on Rockwell's IBM 3090 mainframe running MVS/XA in Richardson, Texas. Users are connected to the mainframe through Rockwell's wide-area network (WAN) incorporating long-distance leased lines.

Brayton said users log onto IBM's TSO application directly; there is no front end to the mainframe sending user commands to the larger system.

"It's like executing a batch file," Brayton explained. "We don't need a front-end processor because it's a pretty high-powered mainframe and we don't put heavy transaction systems on this machine," he said, noting that users at only one or two libraries at a time access the system.

There are 25,000 users who have access to the Richardson mainframe. So far, it's been a handful of librarians who have been the primary users. Rockwell is able to keep track of how many employees are using the system by how many IDs it has issued.

"We would welcome anyone who wants access to it," said Jack Okuda, project coordinator for RTIS at Rockwell's Space Transportation Division. "But so far, it's been the librarians making the queries."

Later this year, the customized Basis system will be upgraded to become a relational database. Rockwell has declined to specify how much the company has spent to install RTIS.

Before RTIS, Rockwell had no common database listing its numerous technical documents. The six California divisions were linked to a less sophisticated system. The idea to create an online information pool was originated five years ago at a meeting of Rockwell's librarians. It received corporate approval sometime thereafter.

"We're a research company," Leavitt said. "We make quite an investment in information. We need to share it."

Pitta was formerly a correspondent for *Computerworld*.

BMC's on-line monitor seeks to fill DB2 gap

BY STANLEY GIBSON
CW STAFF

SUGAR LAND, Texas — BMC Software, Inc. recently released a real-time on-line performance monitor for IBM's DB2 relational database management system. In offering real-time information, DB2 Activity Monitor bests IBM's DB2 Performance Monitor product, which provides performance information only in a batch mode.

"DB2 AM gives you everything on-line. IBM PM gives it to you only the next day," said Kerry Tenberg, database administrator at Chessie Computer Services, Inc., in Baltimore. He said DB2 Activity Monitor provides comparable information to that provided by IBM's DB2 Performance Monitor, but because the IBM data is not on-line, he does not use it any more.

DB2 Activity Monitor fills what many perceive as a gap in IBM's offerings: first-class tools that run with its DBMS products.

"IBM's own tools are inadequate, so third-party tools are needed. IBM is still essentially in the hardware business," said Tom Sawyer, senior consultant at Codd and Date Consulting Group.

The product analyzes real-time and historical data for DB2 and all of its transaction environments, including IMS, CICS and TSO, according to BMC. The monitor notifies users of exceptional conditions as they occur. It can produce batch as well as on-line reports.

Zoom in on details

DB2 AM also provides a so-called zoom function, which reportedly allows a user to focus on details at first displayed in multi-level summary form.

The monitor's screens offer information in colored bar charts and tables, which a user may interactively customize, according to BMC.

DB2 AM requires MVS/XA or MVS/ESA, DB2 Version 1 or 2, IBM's ACF/VTAM V2, and TSO with ISPF.

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FPS Unix supermini gets networking, graphics boosts

BY J. A. SAVAGE
CW STAFF

BEAVERTON, Ore. — Moving its recent stand-alone minisupercomputer RISC Unix strategy into a networking scheme and adding three-dimensional graphics capabilities, Floating Point Systems, Inc. (FPS) introduced new software products late last month. FPS also said that an old product, its math library, would be available at reproduction cost only.

This strategy follows a difficult few years for the company, which originally hand-built — down to making its own chips — math-intensive machines that relied on a host Digital Equipment Corp. VAX/VMS computer. With losses of $48.2 million since 1986, the company has changed its strategy, pared down its research and development and sold off its chip manufacturing. FPS now aims at the Unix operating system market with the Model 500 series, which provides both vector and scalar processors.

"We think we've turned the corner," said Terry Bennett, director of marketing at FPS, adding that if it has not, the company may only have about 20 months of life left.

Analysts agree that while the products bring the company up to speed with competitors such as Alliant Computer Systems Corp. and Convex Computer Corp., it will still be a challenge to turn the company profitable. "It was an ante to get into the market," said Lew Brentano, an analyst at Santa Clara, Calif.-based Infocorp. "It will get them to the point where they'll probably survive."

The Unix reduced instruction set computing minisuper, which was acquired from Celerity Computing last year, has been selling at a modest clip, about two per month since January, according to the company. However, analysts said there is little to differentiate the machine.

"If I were a user, I'd wonder why I'd go with their systems without the concern about whether they will be around," said Laura Segervall, an analyst at San Jose, Calif.-based Dataquest, Inc.

Net play

Ethernet and Decnet networks are now available for the 7-month-old Model 500 series, along with the X Window System, Program Hierarchical Interface Graphics+, or PHIGS+, graphics standards as well as the older two-dimensional graphics language, Graphical Kernel System. By late fall, the company will add a high-speed, 1G byte/sec. network from San Jose-based Ultra Network Technologies. Convex also has announced support for the Ultranet product.

The math library, which FPS has developed during its 20 years of supercomputing research, is available at cost as a method to establish it at the algorithm standard, according to Bennett.

The software products followed an announcement earlier this month for a math accelerator for FPS's DEC VMS-based minisuper, the M/64-60. The accelerator, called Supermax, incorporates emitter-coupled language and CMOS into very large-scale integration technology that, according to the company, increases the throughput from 22M to 152M floating-point operations per second per board.

FPS is working on software that will allow its computers to "autoparallel" applications — dividing up the tasks on its vector and scalar CPUs — and is expected to have it within a year. FPS dropped its parallel "T series" development amidst its worst financial trouble last year.

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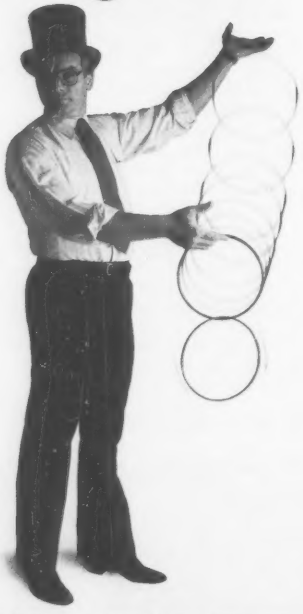

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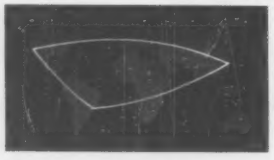

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HARD BITS

Modcomp signs reseller deal

Modcomp in Fort Lauderdale, Fla., signed a reseller deal with Lockwood Greene Systems in Spartanburg, S.C., a maker of application software for the pharmaceutical, food processing, chemical and factory-floor markets. Lockwood will port its software to the Modcomp real-time computing platform and resell the bundled systems.

Intelogic Trace, Inc. in San Antonio announced plans to provide disaster recovery services for IBM midrange customers. The organization plans to provide hot-site facilities along with loaner equipment and remote hook-up options.

The service will cover IBM System/34, 36 and 38 computers as well as the Application System/400 product line, according to Intelogic.

Zetaco, Inc. in Minneapolis signed a $5 million deal with **Data General Corp.** to resell DG's Aviion systems, which are based on the Motorola, Inc. 88000 chip. Zetaco, which also resells the Sun Microsystems, Inc. workstation, is a maker of peripheral controllers and data storage systems for networked environments.

The Aviion system will be resold as part of the company's Netstor product line.

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23. Dir., Mgr., Supvr., Analyst of Systems
31. Dir., Mgr., Supvr., of Programming
32. Programmer, Methods Analyst
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38. Data Comm. Network/Systems Mgt

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Gibson

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tion gives the same reason to explain why it will not allow the press at its meetings: The open process is just too delicate to stand the glare of public scrutiny.

But if the public is told of proceedings only through prescreened reports and official channels, is the process really open?

In fairness, it should be noted that when the Constitution was being hammered out, there was no press coverage of those proceedings. Some scholars have said that the deal-making that went on could never have taken place if the press had reported every word that was said. Nonetheless, most of us believe that democracy was being practiced when the Constitution was written.

Sometimes people just can't afford to be seen publicly stating the positions in which they truly believe because the political risks are too great. So maybe a certain amount of public-private hypocrisy is necessary to get anything done in this world. It may just be a fact of life.

But, one wonders, when will computer software's open process be sturdy enough to stand public scrutiny? Later this year? Next year? In 1995? In the year 2000? Never?

The open process will never fully arrive, nor will it be healthy, until people are willing to speak their minds in a public forum.

BUT, ONE wonders, when will computer software's open process be sturdy enough to stand public scrutiny? Later this year? Next year? In 1995? In the year 2000? Never?

It is with this in mind that I recall and admire Ken Olsen's criticisms of Unix and Manufacturing Automation Protocol (MAP). He attacked them publicly and took some heat for it, but we need more people like him who are willing to speak out in public, not just behind closed doors.

For the record, Olsen likened vendors claiming easy Unix portability to "snake oil salesmen." This was after he had taken MAP to task as unnecessary, given the usefulness and availability of Ethernet as a factory automation protocol. These statements resulted in what DEC-ies call the "MAP Flap."

Why can't more people step forward and make their beliefs known? Probably because few other than Olsen can afford to take the heat involved. Olsen stands alone among vendors, and there are perhaps fewer users eager to step forward. Users tend to take grief from both their employer and their vendor when they speak out. For many of them, it is just not worth it.

But the sooner they do speak out, the sooner an unquestionably open debate will take place — and the open process can become truly open.

Gibson is *Computerworld's* senior editor, software.

VAX growth

CONTINUED FROM PAGE 23

edging closer to that of IBM mainframes, and with DEC systems being used for critical on-line transaction processing applications, the need to manage the resource becomes stronger, Desautels said.

However, unlike the IBM world, utilities to perform tasks such as performance monitoring and optimization and resource management for VAX systems have been scattered and few.

Users could purchase this type of software from small, one- or two-product companies; develop their own utilities; or take advantage of freeware programs available through the Digital Equipment Computer Users Society, the DEC user organization.

Kevin Kalkhoven, founder and chief executive officer of Demax Software, said the increased size and complexity of VAX applications have created a need for the systems management utilities his firm provides. Kalkhoven contended that while five years ago, "large was a couple disk drives and 20 or 30 users," now VAX systems with 50 to 100 drives containing one million files are not uncommon. "Yet, the VMS operating system remains virtually the same," he said.

Demand for VAX resource planning and management tools may be partly attributed to the growing number of sites with both DEC and IBM equipment. At Bankers Trust, which has four IBM 3090s in addition to many VAXs, Rose said, "Senior management is asking for the same kind of information it expects to get from IBM" such as how performance will be affected by additional demands on the system.

Analysts, however, temper the optimistic expectations of some vendors. Christian A. Christianson, director of the midrange systems strategies group at Westport, Conn.-based Meta Group, said that DEC, which already provides capacity planning and other tools, is likely to enhance its offerings and possibly bundle some resource management utilities with VMS. Further, Desautels said that mixed IBM and DEC shops may choose to manage their DEC resources through IBM tools with a DEC interface.

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Vice President
Corporate Distribution and Support Services
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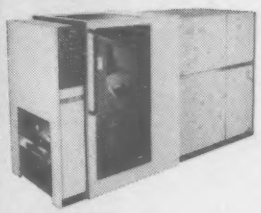

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NEW PRODUCTS — SOFTWARE

System software

The Ultimate Corp. has introduced an enhanced version of its proprietary operating system.

The Ultimate Operating System Release 200 (O/S200) was developed for multiuser, high-transaction environments, the company said. It reportedly incorporates a relational database management system and is said to be portable across a variety of hardware platforms. The Pick-based operating system now includes file indexing and multilingual capabilities and is priced from $18,900.

The Ultimate Corp.
717 Ridgedale Ave.
E. Hanover, N.J. 07936
201-887-9222

Century Software has introduced an IBM AIX version of its asynchronous communications package.

Term V6.1 provides IBM RT workstation users with Digital Equipment Corp. VT220 emulations and the DEC multinational character set. The software provides a wide variety of emulations and runs under multiple operating systems including Unix, Xenix, DOS, VMS, BTOS, Apple Computer, Inc.'s A/UX and AIX.

The AIX version of Term sells for $495.

Century Software
Suite C294
5284 South 320 West
Salt Lake City, Utah 84107
801-268-3088

Development tools

I-Logix, Inc. has released Version 2.5 of Statemate, a systems engineering environment designed for developers of real-time systems.

The latest release reportedly includes a multichart simulation feature. The product comprises four modules: Kernal, priced at $10,000 per user; Analyzer, which costs $25,000 per user; Prototyper, priced at $25,000; and Document, which costs $15,000.

The software runs on Digital Equipment Corp. Vaxstation, Sun Microsystems, Inc. and Apollo Computer, Inc. platforms. It operates in stand-alone and networked modes.

I-Logix
22 Third Ave.
Burlington, Mass. 01803
617-272-8090

Uniq Digital Technologies, Inc. has announced a fourth-generation application generator.

According to the company, Nova allows applications to be developed on one type of computer or operating system and, without modification, run on different systems. Nova applications are said to interface to many commercial database packages and provide access security. They are window-oriented.

Prices range from $2,560 for an Intel Corp. 386 system to $43,000 for a Digital Equipment Corp. VAX 8650 and 8700. An MS-DOS version sells for $795.

Uniq Digital Technologies
28 S. Water St.
Batavia, Ill. 60510
312-879-0807

Applications packages

Systems Center, Inc. has announced that its report-writing software now provides dual support for IBM's SQL/DS and DB2 database management systems.

DB/Reporter Release 2.0 supports flat-file I/O processing, which allows reports to include data from outside of SQL/DS or DB2. According to the company, other features include automatic aggregate functions that are specified with keywords, support for arrays and programmer functions to facilitate complex reports and trace and debugging aids.

Permanent site license fees range from $17,000 to $26,500 depending on model size.

Systems Center
1800 Alexander Bell Drive
Reston, Va. 22091
703-264-8000

Jobscope Corp. has announced that its Jobscope manufacturing management software is now available to run on the IBM Application System/400 midrange computer.

The software was designed specifically for order-driven manufacturers, industrial service companies and government contractors, the company said. The integrated product reportedly provides data on materials planning, production control and financial management.

Pricing ranges from $45,000 to $160,000.

Jobscope
355 Woodruff Road
Box 17, Highland Park
Greenville, S.C. 29607
803-234-4851

Jobscope's ***manufacturing management software runs on the AS/400***

Analog Design Tools, Inc. has announced that its Analog Workbench design software is now available for IBM's RT workstation.

The computer-aided engineering package was developed as a tool for the design and simulation of integrated circuits and printed-circuit boards, the vendor said. It reportedly includes X Window System support, schematic capture capability and a full set of simulated test instruments. The IBM RT version of Analog Workbench is priced at $14,500.

Analog Design Tools
1080 E. Arques Ave.
Sunnyvale, Calif. 94086
408-737-7300

Utilities

Macro 4, Inc. has introduced a group of monitoring and performance-tuning products.

According to the vendor, React uses on-line displays and context-sensitive Help screens to present data on individual resource-usage and systemwide IBM CICS monitoring. React is said to be available through the latest release of DOS/VSE System Accounting, Version 3.9. Its price is $2,400. A prerequisite, Data Capture and Computer Usage Reports, is listed at $8,310.

Words Online is said to provide customized screens, user-defined Help keys and field-level Help screens for CICS applications. The product is available for MVS, MVS/XA, VM and DOS/VSE environments. The DOS/VSE version costs $10,410.

Vsamtune 2.3 is a new release that reportedly introduces features such as work-load management. This feature allows the user to perform "what-if" modeling in the IBM MVS and VSE environments. The MVS version costs $14,190.

Macro 4
Brookside Plaza
P.O. Box 187
Mt. Freedom, N.J. 07970
201-895-4800

Landmark Systems Corp. has announced that Eyewitness, the company's on-line IBM CICS dump capture and analysis package, now offers support for transaction dumps.

The vendor has also enhanced the product's system dump capabilities by adding a job log display to assist programmer analysis by capturing all CICS messages to the moment of failure.

The software runs under the IBM MVS/ESA environment, and a permanent site license is priced at $21,000.

Free maintenance is provided for one year.

Landmark Systems
8000 Towers Crescent Drive
Vienna, Va. 22182
800-227-8911

Shaffstall Corp. has announced a data conversion utility developed for Digital Equipment Corp. VAX computer users.

The Missing Link is said to enable users to convert data and documents among a variety of computers and application programs.

Using the VAX as a host, incompatible documents are processed through Shaffstall's Text Processing Language and deposited as a translated file that may be stored or sent to other systems on the network, the vendor said.

Final pricing for all configurations has not yet been announced.

A single-user license on a Microvax is priced at $2,500.

Shaffstall
7901 E. 88th St.
Indianapolis, Ind. 46256
317-842-2077

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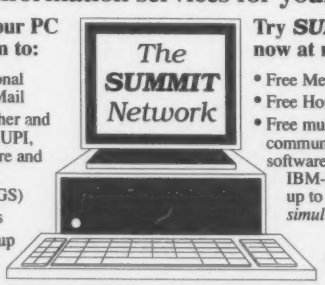

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NEW PRODUCTS — SYSTEMS

Processors

Modular Computer Systems, Inc. (Modcomp) has introduced a multiuser technical workstation that reportedly integrates the Modcomp Classic 11/15 real-time minicomputer with an IBM Personal Computer AT-compatible personal workstation.

The Micro Classic II runs both the Modcomp real-time operating system and MS-DOS, the vendor said. The standard package is said to include an IBM PC-compatible Classic 11/15 minicomputer, monitor, keyboard, serial mouse, 40M-byte hard disk and 1.2M-byte floppy disk drive. The system is housed in a tower enclosure and is priced from $18,000.

Modcomp
1650 W. McNab
Fort Lauderdale, Fla.
33340
800-255-2066

Unisys Corp. has announced the Icon series Personal Workstation (PW²) 800 Fileserver, designed to be used with the Icon Educational Network System.

The Icon PW² 800 is a network-based microcomputer system developed specifically for instructional use in government, education, industry and social services, the vendor said. The MS-DOS system incorporates a 20-MHz, 32-bit Intel Corp. 80386 microprocessor as well as 1M byte of memory, 64M bytes of fixed storage and a 1.2M-byte diskette drive. The product is priced at $8,995.

Unisys
P.O. Box 500
Blue Bell, Pa. 19424
215-542-4011

Data storage

Matrix Corp. has announced two mass storage data modules, the VME Data Module and the VME Floppy Module.

The VME Data Module incorporates a 3½-in. floppy disk drive, a 40M- to 100M-byte hard disk drive and a small computer systems interface floppy controller into one modular unit and requires only three Motorola, Inc. VMEbus slots, the vendor said. It is priced at $1,995.

The VME Floppy Module reportedly combines a 3½-in. floppy disk drive and a floppy disk controller into a modular plug-in unit that requires two VMEbus slots. The product costs $995.

Matrix
1203 New Hope Road
Raleigh, N.C. 27610
919-833-2000

Dataram Corp. has announced a memory board designed for Digital Equipment Corp. Microvax and Vaxstation computers.

The DR-300 single board is available in 8M-, 16M- and 32M-byte configurations, the vendor said. The board is offered with a lifetime warranty and is reported to be compatible with Microvax series 3300 through 3900 and Vaxstation series 3200 through 3500. Pricing ranges from $2,895 to $13,995, depending on memory configuration.

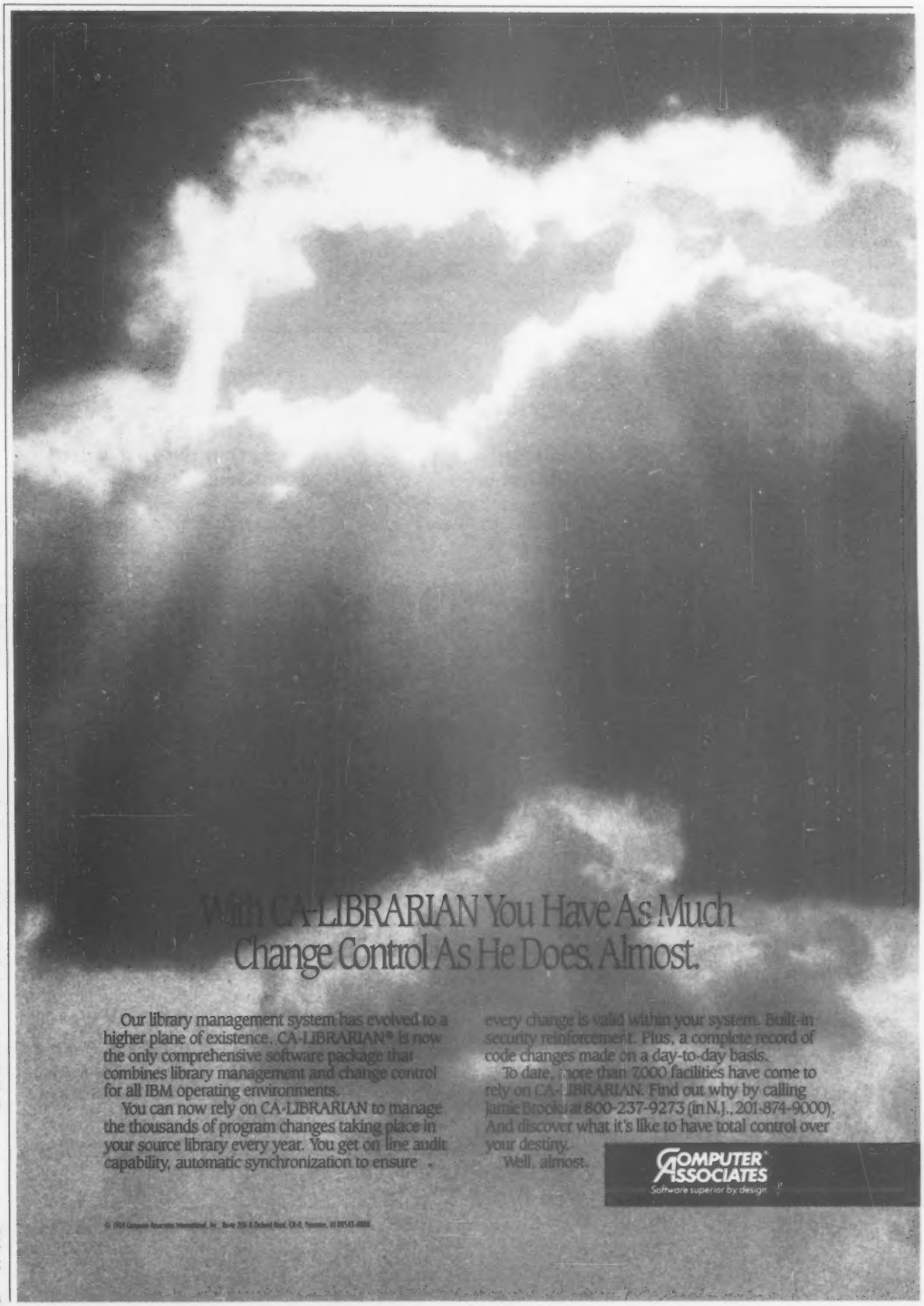
Dataram
P.O. Box 7528
Princeton, N.J. 08543
800-822-0071

Information Storage, Inc. has announced a small computer systems interface (SCSI) product that offers interface hardware and software drivers for PC-Bus with DOS, Unibus or Digital Equipment Corp.'s Q-Bus with VMS and IBM's Micro Channel Architecture-based Personal System/2 with DOS, the company said.

The 1.28G-byte, 5¼-in. system reportedly provides a 6.5M bit/sec. data transfer rate. It is available in two configurations: an internal version with SCSI optical disk controller, software and cabling, priced at $6,488; and an external desktop configuration that reportedly provides a power supply, I/O cable, software and manuals and lists at $6,788.

Reseller pricing is also available, the company said.

Information Storage
2768 Janitell Road
Colorado Springs, Colo.
80906
719-579-0460



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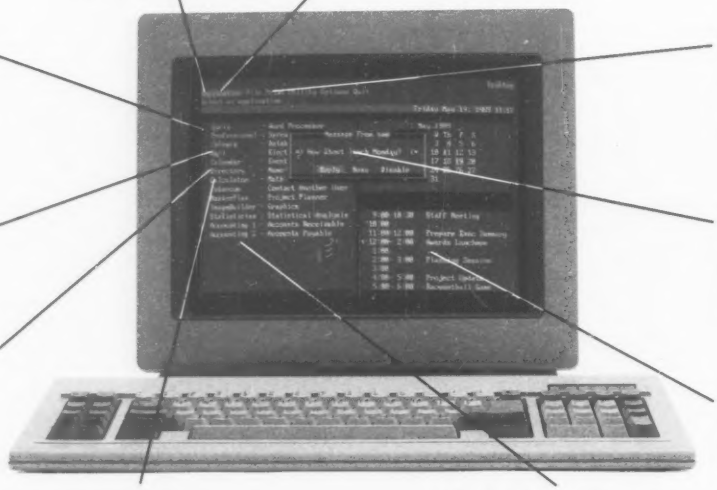

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MICRO BITS

Douglas Barney

Sue me, sue you blues

Lawsuits — where will it end? I hope you are as sick of copyright infringement lawsuits that self-serving vendors fling at each other as I am. Apparently, we are not nauseated enough, because more suits keep rearing their ugly, savage heads.

The most insidious cases may be yet to come. While I'm offering no predictions, there is a wealth of disturbing possibilities. Take IBM's Systems Application Architecture (SAA), for example. IBM has defined what SAA is and what SAA applications are supposed to look and behave like.

Now, what happens if some vendor ports an SAA application to another environment but maintains its look and keeps it feeling the way it always felt? Could IBM sue? Based on all the bizarre precedents set so far, it sure could.

What if a *customer* develops an application that adheres to SAA guidelines? Who owns that? Dunno, but it sure would be helpful to find out. Ironically, software that does IBM a favor by adhering nicely to SAA guidelines could be the

Continued on page 42

Apple's System 7.0 bears OS/2 similarity

ANALYSIS

BY DOUGLAS BARNEY
CW STAFF

CUPERTINO, Calif. — Apple Computer, Inc. hopes to take a quantum leap forward when it ships its new operating system next year.

The system, dubbed System 7.0, stabs back at Microsoft Corp. and IBM, which have been touting OS/2 and Presentation Manager as the operating environment of the future.

In fact, there are those who believe that the OS/2 Presentation Manager is a response to strides made by Apple's Macintosh into corporate America. Apple officials certainly seem to hold that opinion. "You don't hear about anyone wanting to be more DOS-like, do you? They all want to be more Mac-like, and we've got that shtick down," said Jim Davis, director of systems software at Apple.

Apple has already spent the last several years and many millions of dollars designing and developing this system, which is so crucial to defending against the OS/2 onslaught.

In fact, a browse through the respective lists of specifications reveals products with more similarities than differences. Both provide the ability for applications to share live data and include virtual memory, graphical user interfaces and sophisticated imaging architectures. System 7.0 adds built-in access to external databases such as Oracle Corp.'s Oracle as well as true 32-bit addressability. However, unlike OS/2, it does not provide full so-called preemptive multitasking. Apple claims that this form of multitasking can slow down a user's primary application and thus is unacceptable.

The key difference, according to the OS/2 camp, is that OS/2 is already available. For Apple, however, the key difference is that System 7.0 runs on all

Continued on page 42

Apple bets on System 7.0

Features aim to offset OS/2 gains

Core technologies:

- Virtual Memory, which allows a hard disk to act as random-access memory
- 32-Bit Addressing, which allows the system to address up to 4G bytes of memory
- Interapplication Communication Architecture, which provides direct and live application-to-application communication and data exchange
- Outline Fonts, which provide sharp text of any size on any graphics peripheral, fax modem, printer or monitor
- Layout Manager, which provides typographics-quality text and text positioning
- Database Access, which provides access to remote databases
- New Finder, which increases ease of use

CW CHART: JOHN YORK

PS/2s get sight and sound ability

BY WILLIAM BRANDEL
CW STAFF

The ability to combine and edit sound, pictures and text into presentation form is now possible on IBM Personal System/2s with audiovisual connection (AVC) and other graphical enhancement products unveiled late last month.

Audiovisual connection software reportedly allows the user to integrate sound and still-frame graphical movements on-screen. Viewers can hear sounds or voice dubs that complement the program for giving presentations or training sessions.

AVC features include image enhancement with support for 256 colors, the ability to manipulate an image's size and location or move text without interrupting the image on-screen; hypertext-like capabilities to link text with audio, special sequences or related subjects; and rapid display of animated objects.

The software, priced at $495, will be available in September, according to the vendor.

IBM also announced a PS/2 Video Capture Adapter/A, a Micro Channel Architecture adapter card used with AVC software to capture images from video equipment or a PS/2 screen. The images, changed from analog to digital signals, can be stored on a hard disk and then recalled on any IBM Video Graphics Array monitor. The VCA/A card is listed at $2,250 and is slated to be available in September.

A PS/2 audio-capture/playback adapter was also unveiled to capture recorded voice or stereo music from standard musical equipment. The product works with MCA-based PS/2s and the Model 30 286. It is priced at $565 and will also be available in September, the vendor said.

IBM also introduced a faster, more powerful version of its mainframe-based expert system software Knowledgetool, which now includes graphics accompanied by sound played on the PS/2.

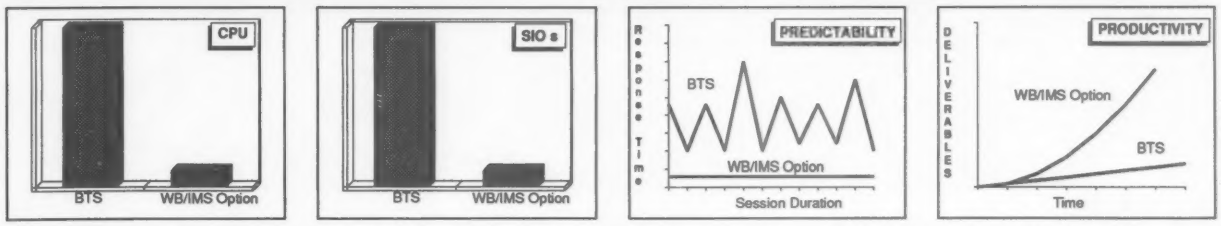
The new version allows the

Continued on page 40

Inside

- Reviews of Toshiba's low-end portable dot matrix printer, Alpha Software's easy to use relational PC DBMS and Digital Research's upgraded Desktop Publisher. Page 35.
- Gates claims OS/2 will soon be a hotshot. Page 40.

Technology Breakthrough: IMS DB/DC on a PC !



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—George P. DiNardo,
Executive VP, Mellon Bank

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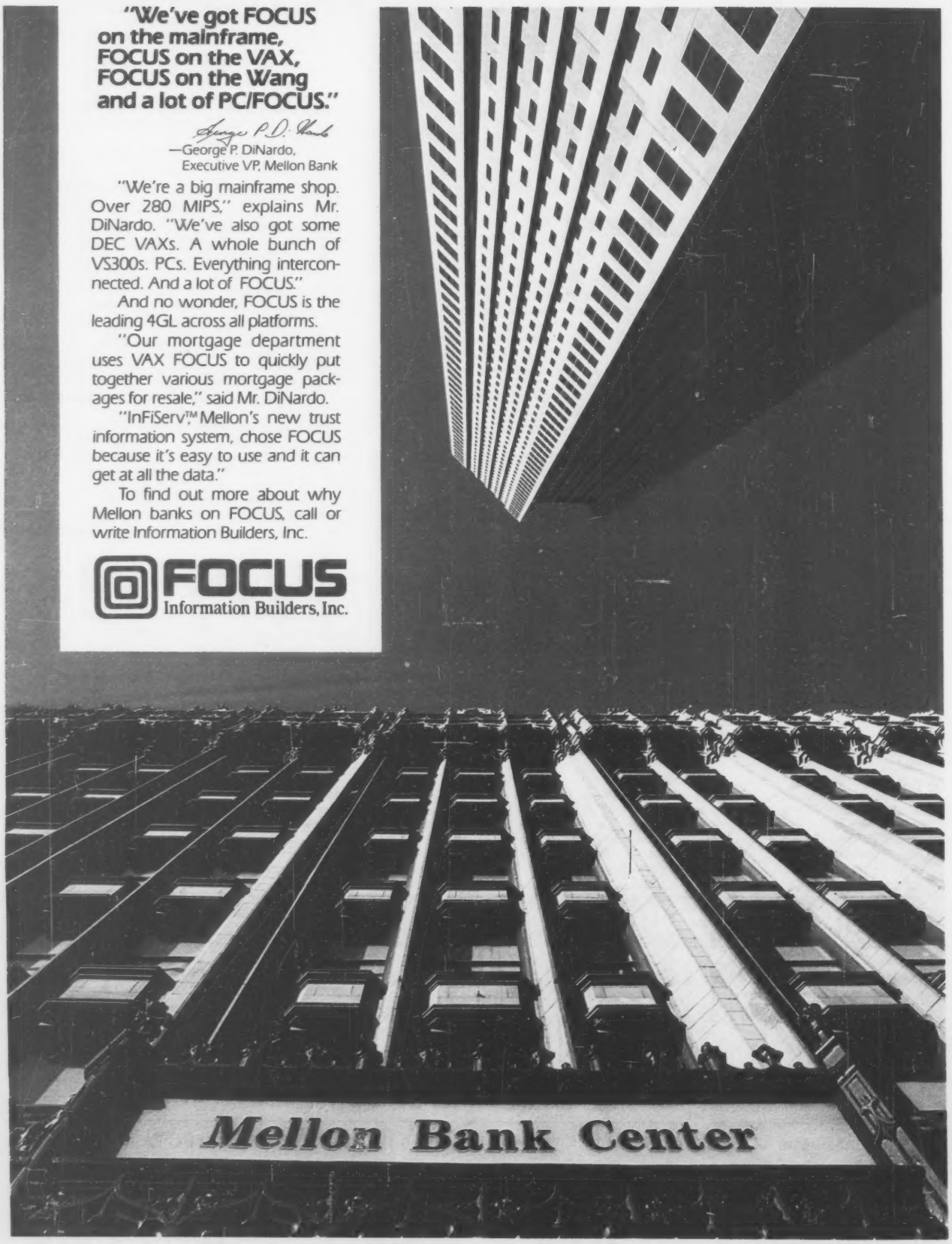

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PRODUCT REVIEWS

Buffed GEM shines but still has flaws

Digital Research, Inc. (DRI) has made significant enhancements to its GEM Desktop Publisher program. Release 2 of this midrange product is less awkward, more capable and more thoughtfully implemented than its predecessor.

Unfortunately, however, this one-time ugly duckling is still not a swan. DRI now recognizes the importance of typography in desktop publishing. It has added such essential features to GEM as hyphenation, tracking control and manual kerning for user-selected pairs of letters.

In text handling, GEM Desktop Publisher now supports a full range of word processing file formats. In addition, changes made to text files edited in GEM Desktop Publisher are automatically saved to an ASCII version of the original file.

GEM now supports numerous typefaces, including 11 that are found resident in most Postscript printers. It also comes bundled with the Bitstream Fontware installation kit that includes nine typefaces.

There is a graphics option for drawing simple graphics. It offers a choice of several fill screens, patterns and colors as well as a selection of three line-end styles. Like its predecessor, Release 2 imports several graphics formats for more complicated artwork.

GEM has the essential capabilities for layout, including editable text flow, several page views, style sheets and snap-to layout rulers. A strong layout impediment is the inability to view frame layouts when entering text.

DRI's GEM Desktop Publisher *adds hyphenation*

GEM's expanded word processing format support is a good idea. However, the import filters tend to abort with no error message; the program acts as if no import was ever attempted. Fortunately, albeit awkwardly, the filters can be run from DOS before you load the program.

Word processing features, which are slightly substandard for a midrange package, include standard ruler, margin and tab support. Cut, copy and paste capabilities operate as expected. There is no search and replace facility, nor any additional utilities such as a spelling checker, footnoting, quote conversion or indexing.

Both kerning and tracking are specified as a percentage of the current type size, which is an unusual but precise method of manipulation. The expanded support of Postscript printers' capabilities

Continued on page 37

Price puts printer in market niche

Toshiba America Information Systems, Inc.'s Express Writer 311 is a portable 24-pin dot matrix printer.

The $589 price tag places the Express Writer 311 in the low end of the 24-pin printer market. Although graphics output is merely adequate, text output is impressive. The portable design makes it a viable choice for travel and office work.

The Express Writer 311 prints 80-column text at 180 char./sec. in draft mode and 60 char./sec. in near-letter-quality mode. There is a 16K-byte buffer. Also, the backside has four molded "feet" so that it can be stored upright when not in use. Other standard features include a parallel interface, retractable platen knob and two resident fonts of near-letter-quality. A quiet mode can be used to reduce noise levels. The printer has a small footprint (15.7 by 12 in.), weighs 11 pounds and has a retractable handle. The 311 has emulation modes for the Epson America, Inc. LQ series, the Toshiba/Qume and the IBM Proprinter.

Express Writer 311 *has impressive text output*

The Express Writer graphics performance was slower than the NEC P2200 but slightly faster than the Alps Allegro 24. For printing text, speeds were slower than those of the other two competitors but still in an acceptable range. A desktop publishing file printed in just under six minutes,

To page 36

Alpha Four keeps pace with Ashton-Tate's Dbase

Alpha Software Corp.'s Alpha Four is a personal computer database management system that is not only as relational as Ashton-Tate Co.'s Dbase but also as easy to use. While it has no programming language and suffers from slow indexing that limits manageable file size, Alpha Four is amazingly smooth at setting up multifile data entry screens and reports.

Using Dbase data files directly, Alpha Four features fairly standard capacities, including 256 characters per field, 128 fields per record and an unlimited number of records per database. It works on most IBM-compatible computers and any IBM Personal Computer-compatible printer. It requires 512K bytes of memory and a hard disk.

Alpha Four automates the process of defining validations and field rules with its menus,

Continued on page 36

Alpha Four

Price: $549

- Performance: Satisfactory to very good
- Documentation: Good
- Ease of learning: Very good
- Ease of use: Very good
- Error handling: Good
- Support: Good to very good
- Value: Excellent

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Gupta TECHNOLOGIES, INC.

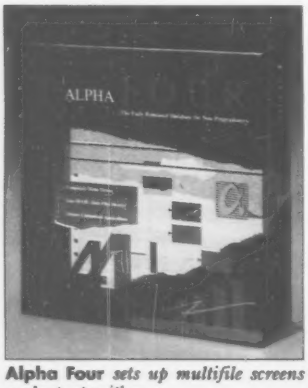
We invented the SQL database server.

Alpha

CONTINUED FROM PAGE 35

thereby eliminating the programming necessary in Dbase. Features include detailed data validation, field rules, pop-up lists for data selection, screen painting for defining forms and reports, multilevel reports and the ability to export data to popular word processing formats.

Alpha Four's main data entry form contains all the data from the related files. A file linked to another becomes the first file's "child." The child, in turn, becomes the "parent" to any other file to which it is linked. There is a limit of 10 open files, no matter how they are arranged. Applications can be defined to pop up a list of values on command, allowing values to be grabbed from a related file, or the list can pop up automatically from the specified



Alpha Four *sets up multifile screens and reports with ease*

field. Alpha Four can take values from one field and fill in another field in another form automatically.

Alpha Four only allows editing of the parent file's fields and the fields that are used to link the related files. To edit a record in a related file, it is necessary to "zoom" to the desired file.

Alpha Four uses search lists, filters and ranges for maximum flexibility when performing queries. These query definitions are all fairly standard. The main advantage Alpha Four has is that defining the query is part of a consistent environment that never requires users to drop into programming to solve a problem. For example, to look up inexact data, all you have to do is select an option from the menu.

The only unnecessary Dbase constraint Alpha Four uses is the syntax for handling field data. Unwanted spaces must be removed from character strings with the Trim and Ltrim commands.

Alpha Four offers quick reports, a middle ground between queries and full reports. Choosing fields from multiple files is as easy as picking them from one file.

Alpha Four boasts several nice features for reporting such as the ability to generate multipass reports that calculate summary fields in advance. With screen-painting capabilities, the reports are a breeze to create. A full range of options is available for customization.

Except in operations involving index files, Alpha Four is surprisingly fast at interactive use, even with related files. Alpha Four does not offer the option of automatically maintaining index files during data entry, and it can be extremely slow at re-indexing a very large file. The sorting option has been eliminated altogether.

Alpha Four's documentation is complete where it counts. Any user who knows anything about database software will not need to use the manual very much to learn Alpha Four. Just knowing the quirks of Dbase's file format is enough. However, it is possible to get confused if you try to use the more complex and flexible functions immediately.

Alpha Four is easy to use. It is heavily menu-driven, with numerous shortcuts for experienced users, and it automates tasks that require many steps in Dbase. It does not offer file-recovery utilities, logging, rollback, Undo or file encryption but does have password protection.

Alpha Four comes with 60 days of free — but not toll-free — technical support, including facsimile access. A bulletin board service is available at up to 2.4K bit/sec, and a 60-day money-back guarantee and corporate support plan are also offered. Support personnel are very knowledgeable.

ANY USER who knows anything about database software will not need to use the manual very much to learn Alpha Four.

Priced at $549, Alpha Four is the only product that uses Dbase files directly and makes relational applications this easy.

Toshiba

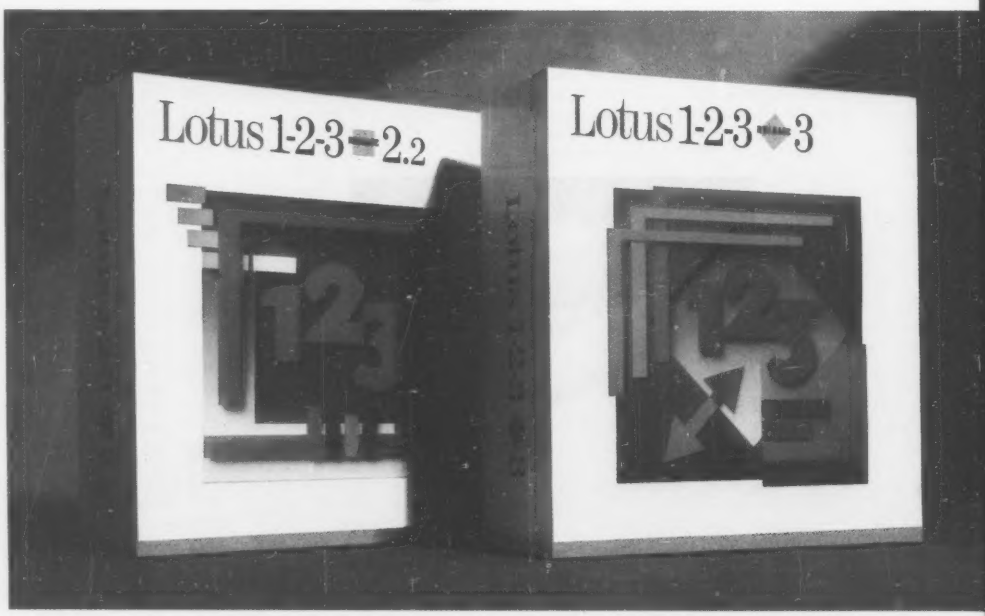
CONTINUED FROM PAGE 35

which was also a little slow but still adequate.

Graphics output displayed a streakiness that is typical of dot matrix printers, and few grays were accurately reproduced. Although bit-mapped images posed a few problems, line drawings were rendered with fine clarity and text samples were very well-defined. Characters were rich and crisp with no ink smears.

Two near-letter-quality fonts are resident as is one for high-speed draft output. There is also a slot on top of the printer to accommodate any of 14 external font cards.

Lotus introduces so
sleep better at ni



Spreadsheets are like lots of things in life, one size doesn't necessarily fit all.

Different users work with different types of computers. They work on different tasks. And they have different requirements.

That's why Lotus® has created two exciting new spreadsheets: 1-2-3® Release 3 and 2.2. Each designed specifically to maximize performance on different types of PCs and work together across different types of PCs.

Release 3's 3D design lets you work with multiple sheets and files simultaneously.

Release 3 is nothing short of a breakthrough in software technology. Its new, true three dimensional design lets you organize, analyze and navigate your way through spreadsheet applications with incredible speed, power and ease.

What is it that makes Lotus's true 3D different?

© 1989 Lotus Development Corporation. Lotus and 1-2-3 are registered trademarks of Lotus Development Corporation. OS/2 is a registered trademark of IBM, Inc. Macintosh is a registered trademark of Apple Computer, Inc. 1-2-3 Release 3 runs under DOS or OS/2.

The Express Writer 311 comes with a softbound user manual that includes a table of contents, an index, a troubleshooting and error-message section and a five-page glossary of computer terms used throughout the book. Numerous line drawings are included.

As described in the manual, setup takes 15 minutes. Cable connections are accessible and easy to perform. The ribbon cartridge snaps easily into place. DIP switches are located behind the front panel. A self-test print pattern can be generated to ensure functionality.

Continuous forms load without a hitch once the user understands Toshiba's convention of moving the paper bail to change between friction and tractor feed, and an autoload feature sets single-sheet paper to the top of the form. Changing configurations posed no problems and removing and replacing the tractor assembly is simple. Although the tractors do not lock into place, they hold their ground snugly. The retractable handle, small size and light weight add to ease of use, especially if users need to move the printer.

The chassis and many movable parts of the Express Writer 311 are plastic. In particular, the paper bail assembly had no visible metal parts other than the scale, and it felt rickety during use. The retractable platen knob felt sloppy and loose, and the tractor assembly flew apart when inadvertently dropped from three feet.

Toshiba provides a one-year warranty, and repairs are handled through authorized dealers. A 24-hour bulletin board service is available, and technical support is toll-free. Although the technical-support personnel are courteous and knowledgeable, they are not easy to reach.

Toshiba Express Writer 311

Price: $589

- Performance: Satisfactory to very good
- Documentation: Excellent
- Setup: Good
- Ease of use: Good
- Serviceability: Satisfactory
- Support: Satisfactory to good
- Value: Good

GEM

CONTINUED FROM PAGE 35

is a welcome improvement for those who intend to output typeset-quality copy. Unfortunately, only eight typefaces can be accessed at a time, even if the printer supports more. This effectively limits the use of most Postscript printers' built-in typefaces.

The product's graphics-import capabilities remain weak. The program supports only formats of other GEM products. The display of imported graphics is primitive. One plus is a graphics-hiding option that significantly increases screen-redisplay time. Occasionally, screen repainting can be slow, especially on 10-MHz and slower machines. Compared with the competition, however, speeds were better than average.

GEM Desktop Publisher Release 2

Price: $299

- Performance: Poor to good
- Documentation: Satisfactory
- Ease of learning: Satisfactory
- Ease of use: Poor
- Error handling: Good
- Support: Poor
- Value: Satisfactory

GEM Desktop Publisher comes with two manuals — one for the publishing program and one for the GEM/3 operating environment. They are sparse and do not explain the whys and hows needed to understand the product fully. There is some on-line help.

The program is relatively easy to learn, thanks to the GEM interface. The manuals do not help much, but there is a written tutorial that does.

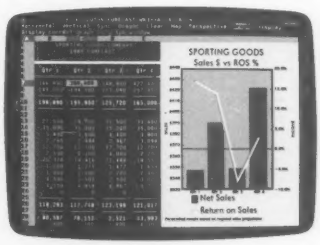
GEM Desktop Publisher automatically generates an ASCII file of an original word processing file. While having two versions of a text can be confusing, it can also be a lifesaver in case of a mistake. Most error messages are clear, and the program is meticulous about saving changes.

The product comes with 90 days of free technical support. After that, a support policy costs $95 per year. The vendor operates a users' forum on Compuserv. The technical support lines are often busy, and the staff's level of expertise was mixed.

Despite these problems, however, do not dismiss GEM Desktop Publisher too quickly. While it has many drawbacks, the truth is that so do its peers. For $299, GEM Desktop Publisher offers a set of features that will cover most midrange users' needs, and its rough spots can be worked around and often overcome.

mething to help you ght. Fitted sheets.

Well, other spreadsheets provide two axes for you to work with: rows (height) and columns (width). But Release 3 gives you a third axis (depth). So you can perform operations using any spreadsheet function *through* up to 256 worksheets simultaneously.



Release 3's HotView graph window dynamically links your worksheet and related graph.

Equally impressive is Release 3's presentation quality output and its selection of advanced analytical graphics. And its Data External command lets you bring data from external databases directly into your spreadsheet without leaving 1-2-3.

You can also create a wealth of customized applications from simple forms to sophisticated turnkey systems using the new Lotus Add-In Toolkit for Release 3.

Release 3 is available now for DOS or OS/2® users and is the one product designed to take full advantage of the 1 Mb memory and processor that is standard on today's 286 and 386-based PCs.

We've also created a new version of 1-2-3 for people who work on all types of PCs in a 640K DOS environment.

The soon-to-be-released 1-2-3 2.2 is designed to maximize the memory of those PCs. Release 2.2 provides extraordinary speed as well as presentation quality output with Allways built-in. And Release 2.2 offers improved analytical power in the way of spreadsheet linking, undo and minimal recalc.

Plus, hundreds of add-in and companion products that work with the 1-2-3 you're using now will work with Release 2.2.

1-2-3 2.2 and 3 provide the highest compatibility with your present 1-2-3 files, macros, applications and with each other. The new 1-2-3 family offers full networking capabilities and because the new products use the familiar 1-2-3 menu, it protects your investment in training and support.

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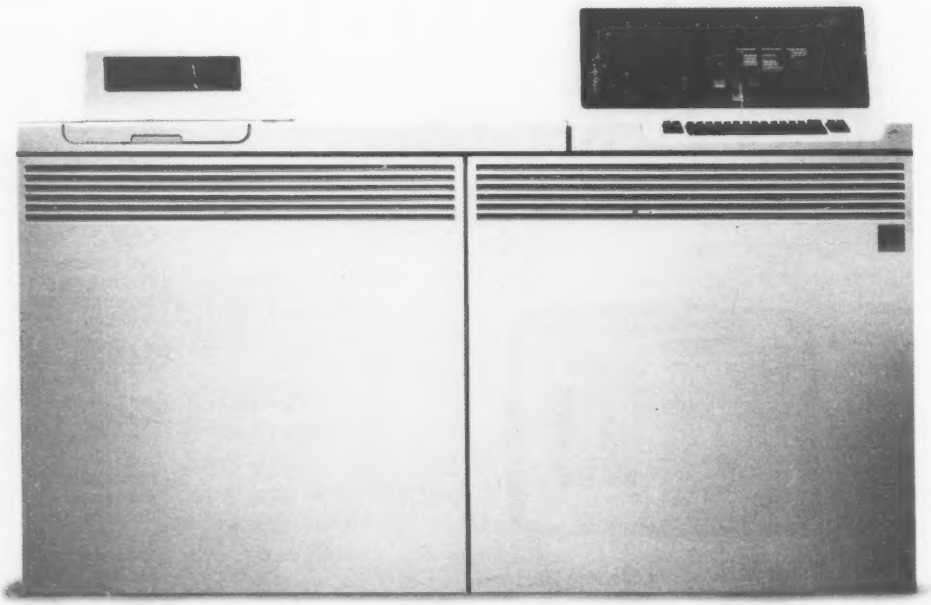

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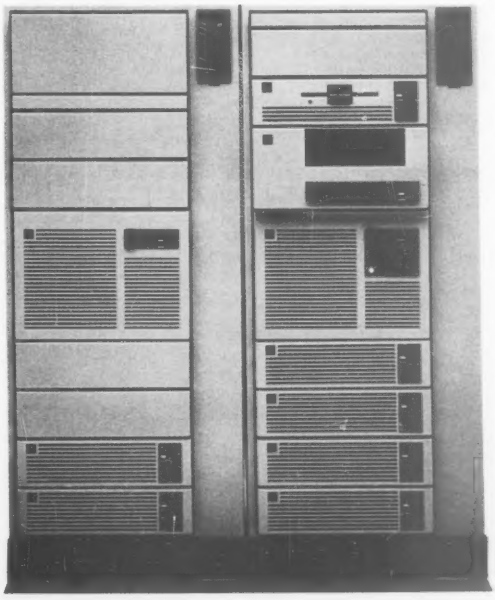

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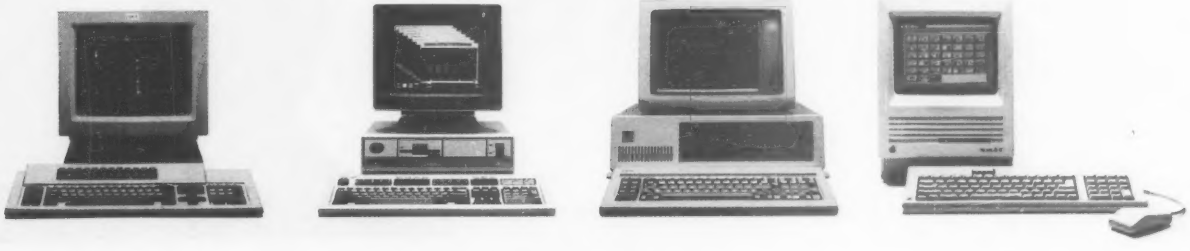

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Gates sees IBM card as OS/2 booster

Emphasizes OS/2 highlights, simplicity, 'dramatic improvement' offered by Intel I486 chip

BY JAMES DALY
CW STAFF

SAN FRANCISCO — IBM's recent introduction of a plug-in card that powers up the Personal System/2 Model 70 A21 with an Intel Corp. I486 processor will be the gunpowder that blasts OS/2 into becoming the dominant operating system of the 1990s, Microsoft Corp. Chairman William Gates and IBM officials said at a forum for the PS/2 held here recently.

Gates drew attention to the availability of the I486 daughterboard option as the latest selling point to a system already laden with attributes.

The I486 chip represents "a dramatic improvement" to the "most important project IBM and Microsoft have ever worked on together," Gates said to more than 800 people attending the first day of the two-day meeting.

Gates also went through a 20-minute walk-through on the high points of OS/2, in a talk emphasizing the system's simplicity.

A push for OS/2

The remarks represent the latest strategy in convincing users to go with OS/2, which has been a lot tougher to sell than either company originally anticipated. Although OS/2 is now more than two years old, MS-DOS continues to be the leading desktop operating system, and a large number of MS-DOS users have expressed reluctance to swim immediately over to its shores.

The reason, according to International Data Corp. (IDC), a market research firm based in Framingham, Mass., is not only that MS-DOS is an adequate system for the majority of personal computer users today, but most installed PCs are either not compatible with OS/2 or lack the processing power to use OS/2.

"Few widespread justifications for OS/2 purchases exist beyond curiosity," a recent IDC report said.

Consequently, IBM and Microsoft have had to resort to grabbing at whatever straws are available in order to hawk the system.

The introduction of the I486 option last month [CW, June 19] hits two targets: It not only provides another selling point for OS/2 by doubling the peak performance of the PS/2 line, but it may also feasibly grab back some of the thunder that Compaq Computer Corp. has stolen in sales of Intel 80386-based systems.

IBM's Director of Desktop Systems Douglas LeGrande claimed that the new chip can perform up to four times faster than the 386 and said IBM will cut the price of the Model 70 A21 by 20% to draw users in.

However, IBM and Microsoft may still face a tough buying public. While users said they appreciated the I486 option, most expressed doubt that it would serve as a swing vote for moving over to an OS/2 environment.

"I can't see jumping over [to OS/2] for just that reason," said Chris Barbaria, who is evaluating OS/2 as a member of the technology projects office at San Francisco's First Nationwide Bank. "We just don't need that speed. Other factors, like the cost of retraining our employees to a new operating system, are much more important right now."

While Gates made it clear that his primary thrust will now be with OS/2, he said neither IBM or Microsoft is going to shortchange MS-DOS customers.

"DOS will go on for a long time to come," Gates said, adding that both companies will continue to work on projects that involve running MS-DOS applications under OS/2 and networking DOS and OS/2 systems together.

PS/2

CONTINUED FROM PAGE 33

PS/2 to perform cooperative processing applications. The software passes mainframe-based Knowledgetool data to the AVC program residing on the PS/2. The software can then be programmed to interact with the determined sound and images.

"Although this is only an enhancement to an existing product, it will give users a dramatic boost in creative use of PC technology by allowing them to access mainframe applications," one analyst said.

Knowledgetool 2.1.1 is available immediately and costs from $2,250 to 34,560, depending on hardware platform.

IBM also announced a faster, more flexible version of IBM Storyboard Plus, a graphic presentation tool updated from the PC Storyboard version. The new program is MS-DOS-based and can be used for animated color presentations, the vendor said.

It runs on PS/2s and most IBM Personal Computers and selected compatibles using a color display.

Storyboard Plus Version 2 is available immediately and is priced at $395.

He also doesn't realize Hewlett-Packard makes PCs.

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The HP Vectra QS/20 PC. One in a line of eight PCs from Hewlett-Packard.

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Look inward for end-user training, IS managers say

BY MICHAEL ALEXANDER
CW STAFF

If you want end users properly trained in using personal computer applications, chances are you will have to do it yourself. That is the view of several information systems managers who are responsible for end-user training and support.

"We take care of training inside when we have new applications for reasons of cost and efficiency," explained Gary Davis, manager of systems and operations at Oxford Sportsware & Apparel Corp. in Tocca, Ga. The company maintains an educational center for its end users at its corporate headquarters in Atlanta and a micro support team at the division in Tocca. Only occasionally will outside trainers be brought in to assist end users, he said. "We usually cannot justify the cost of bringing someone in," Davis added. "It's pretty expensive."

Most companies would prefer to train end users in-house, according to the fourth annual Crwth Survey of trends and directions of end-user computing, conducted by Crwth Computer Courseware, a Santa Monica, Calif.-based vendor of computer-based training programs. The majority of large corporations maintain an information center charged with training and supporting end users, the report said.

There are several benefits to in-house training beyond developing computer skills, according to the Crwth survey. Improved job productivity, enhanced relations between IS and end users and reduction in IS backlogs were also noted as important benefits.

"We prefer to shy away from outside training because we found that end users were never thoroughly trained," explained Wayne Yost, director of technical services at Southern Trust Insurance Co. in Macon, Ga. "Now we never bring experts in-house; instead, we send one out."

The insurance company designated an in-house expert who is responsible for learning key applications and then training end users. Such an expert frequently attends training courses and seminars offered by local computer dealers and vendors.

"Without an in-house expert, we found that when trained people left, there was no one to train the new people," Yost said.

The added advantage of having a resident expert is that he is more knowledgeable than an outside trainer could ever be about the company's business needs and objectives, Yost pointed out. "That's about 50% of the job," he said.

Relying too heavily on a single in-house expert for training is not without risks, Yost conceded. For instance, the employee may decide to leave the company. Also, it can be expensive for the regular and continuous training that the employee must undergo, he said.

> "WITHOUT AN in-house expert, we found that when trained people left, there was no one to train the new people."
>
> WAYNE YOST
> SOUTHERN TRUST INSURANCE

The in-house expert was selected for the post because he has already been with the company for six years, and Yost said he is confident that he is a career employee. Still, to guard against the unexpected departure of the company's sole in-house expert, Yost is now overseeing the development of additional experts.

As for cost, Yost said it is initially expensive to train a single expert heavily; in the long term, however, it is probably more cost-effective. "When an outside trainer leaves the building, his knowledge goes with him," he said.

At Heilig Myers Co. in Richmond, Va., each department is responsible for training its end users, according to Mike Wanless, a systems manager at the firm. "A department may send a person, usually in a management position, to a local training school, but the majority of users are taught in-house," he explained.

His department places strict controls on the software end users can acquire, partly to limit the subsequent training and support demands and partly to keep end-user application development in check, he said.

End users buy programs from a software dealer who is expected to provide required support, usually by telephone hot line. By making each department responsible for its own training and support, end users are more apt to become responsible computer users, Wanless said.

However, there are as many drawbacks as benefits to giving end users a free rein to acquire and use microcomputer applications programs, he added: "There is a thin line between getting your money's worth and end users running rampant with home-brewed macros and internal applications."

well as plenty of options. At the high end, you can get up to 8 accessory slots, 620 Mbytes of hard disk storage, and 16 Mbytes of RAM. And on all models, you get a choice of video solutions and the flexibility of using either 5.25" or 3.5" disks.

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Apple

CONTINUED FROM PAGE 33

Macintosh systems and offers a smooth migration through an intensive focus on backward compatibility.

However, the features discussed by Apple may be phased in over more than one operating system release, with the bulk of critical features appearing early next year [CW, June 12]. The full feature set and availability will be announced this fall, Davis said.

The biggest advantage in Apple's eyes is backward compatibility, an area in which OS/2 has clearly fallen short. "This has been a smooth evolution for the last five years, and our goal is to have it be a smooth evolution for the next five years," Davis said. In comparison, he pointed to the IBM personal computer world with its confusing and often incompatible operating systems, including OS/2, the upcoming Intel Corp. 80386 version and MS-DOS 3.0 and 4.0.

All existing Macintosh programs will run under System 7.0 but must be rewritten to fully exploit its capabilities.

Even though code has yet to ship, many Macintosh developers are gearing up for System 7.0. "Developers were unusually enthusiastic," said Daniel Chiefitz, president of Odesta Corp. Developers, including corporations, will begin to receive code later this year, although Apple has not given out official ship dates. "Nobody is in a god-awful hurry for bad code," Davis explained.

After learning of System 7.0, Cricket Software stopped development for two weeks to identify how to build System 7.0 support into products currently in development. "They gave us enough documentation to be able to affect where our products go," said Bob Roblin, vice-president of product development at Cricket.

Roblin has compared the Presentation Manager with System 7.0. "They are very, very close. The one key problem in Presentation Manager is that there are no interface rules that are as hard and fast as the Mac," Roblin said. The hard and fast Macintosh interface rules result in software that operates the same but is sometimes stifled by the guidelines, developers said.

Barney

CONTINUED FROM PAGE 33

first to get slapped with a nasty lawsuit. I'm not saying IBM would do this. It is just that writing to vendors' interfaces raises all kinds of interesting and evil possibilities.

This problem could get serious because of the broader use of porting tools. These tools allow corporations to move software from, say, the Apple Macintosh to Microsoft Windows to the OS/2 Presentation Manager and even to the X Window System. I'm not sure how well they work, but regardless of that, there are certainly legal pitfalls that could drop the unsuspecting victim straight down into the anxious jaws of corporate shysters. Those clowns just love to gnaw on small, undercapitized developers that can't defend themselves.

IT IS PROBABLY safer to handle toxic waste than it is to write code; at least with the waste, you know what you are in for.

With vendors also disputing the origination of ideas, some unlucky developer, corporate or otherwise, may find itself staring down the barrel of multiple lawsuits. This threat removes, once and for all, whatever fun was left in the world of writing software. It is probably safer to handle toxic waste than it is to write code; at least with the waste, you know what you're in for.

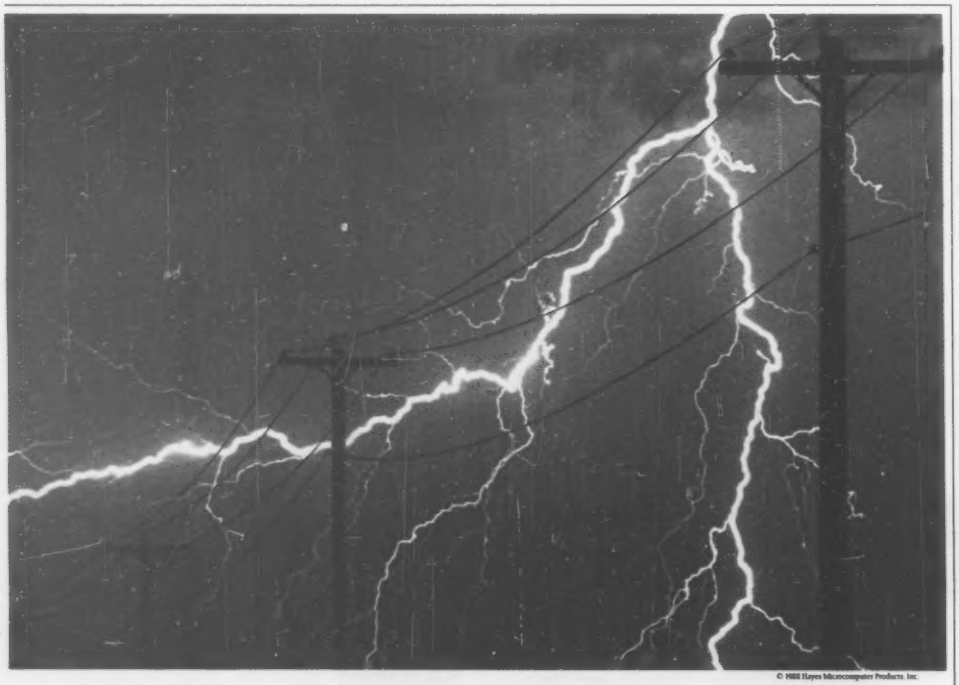
Like the mouths of flag-waving politicians, we should expect this stuff to become widespread. I can just picture the ads: "You've been injured by a falling rock. Your spouse has drained the bank account. Or maybe someone stole your icon. Don't just get mad — get even. Call Sleazy, Cheesy & How. We'll nail the poor schlub for you." Now that's scary.

Tate bits. Ashton-Tate representatives apparently went to competitor Nantucket Software's recent Clipper Developers Conference and told many that the Clipper Dbase compiler did not infringe on Tate copyrights, a highly placed Dbase source told us. Of course, other products are other stories.

That reassurance was nice, but the real hit of the Clipper gathering looked to be "The Nantucket Papers," a series of court documents that chronicle the nasty lawsuits between the current Nantucket chairman and its former president. These guys are not exactly starcrossed lovers. The papers were compiled by former *Lassie* star and current programming whiz Tom Rettig. As you may have guessed, Tom Rettig Associates is based in Beverly Hills.

Meanwhile, developers that are anxiously awaiting Ashton-Tate's compiler should know that the holdup concerns SQL integration, transaction processing and generally moving what was originally supposed to be a Dbase III Plus compiler to the newer and more complicated Dbase IV. Tate maintains it will ship by year's end.

Barney is a *Computerworld* senior editor, PCs and workstations.



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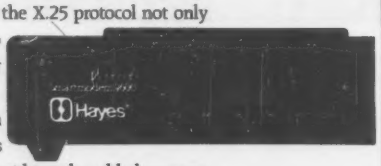
The V42 protocol, for point-to-point communications, automatically detects errors and then retransmits the data correctly. While the X.25 protocol not only offers error-control but also multisession access to value added networks with expanding applications for dial-up X.25 point-to-multipoint communications.



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Hayes.

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*There will be a minimal charge of $50 for either an X.25 or V42 upgrade on products purchased before October 1, 1988. Products purchased on or after October 1, 1988 will include either standard as they become available. For details call Hayes Customer Service: 404-441-1617.

NEW PRODUCTS

Systems

Three workstations designed specifically for industrial control are now available from Intecolor Corp.

The Intecolor PT2001 Rackmount, the Nema-2 and the Desktop Workstations are IBM Personal Computer AT-compatible machines that feature a 20-in. Video Graphics Array display and an Intel Corp. 80286 microprocessor. The systems also include a hard disk and floppy disk drive and two full-size expansion slots, the vendor said.

The Rackmount Workstation reportedly slides into any 19-in. rack, while the Nema-2 unit is housed in a metal case to provide drip, dust and shock protection.

The Desktop Workstation was designed in an ergonomic enclosure for use in the office, according to the company. Pricing for the workstations begins at $7,495, and volume discounts are available.

Intecolor
2150 Boggs Road
Duluth, Ga. 30136
404-623-9145

Lanier Business Products, Inc. has unveiled a compact line of computers including IBM-compatible models.

The Slim Line (SL) personal computers reportedly measure 4.8 by 18.1 by 12¼ in. with a back-panel design for option cards. The IBM-compatible 286.12 SL model uses the Intel Corp. 80286 12-MHz chip and the Neat chip set from Chip Technologies, the vendor said.

Priced at $3,695, the 286.12 SL comes with 1M byte of memory, expandable to 2M or 5M bytes, and includes an Intel 80287 math coprocessor socket.

The Lanier 386/16 SL uses an Intel 80386 16-MHz chip, includes an 80387 math coprocessor socket and is priced at $4,495.

Lanier Business Systems
2310 Parklake Drive, N.E.
Atlanta, Ga. 30345
404-270-2000

Systems Integration Associates has announced price reductions on its Intel Corp. 80386-based line of computers.

According to the company, its base 33-MHz SIA 386/33 with 4M bytes of memory now retails for $9,325, reduced from $13,100.

The 25-MHz SIA 386/25 computer with 4M bytes is now priced at $6,490, a reduction of $1,490.

SIA/33 features include 64K-byte cache memory, Intel Corp. 80387 math coprocessor support, IBM Personal Computer AT-compatible 8-MHz I/O bus timing, a 1.2M-byte floppy disk drive, 4M bytes of memory, one serial and one parallel port and 150M-byte hard disks.

Systems Integration Associates
222 E. Pearson
Chicago, Ill. 60611
312-440-1275

A 16-MHz desktop computer based on Intel Corp.'s 80386 microprocessor has been announced by PC Craft, Inc.

The PCC 2200/16SX reportedly runs both Intel 80286 and 80386 software, can simultaneously run most MS-DOS and SCO Xenix/386 packages in multitasking applications and includes 1M byte of random-access memory that is expandable to 4M bytes directly on the system board.

Standard features include a 1.2M-byte, 5¼-in. floppy disk drive with a one-to-one interleave hard-disk controller, two serial ports and one parallel port, the company said.

Available immediately, the system lists for $2,100.

PC Craft
640 Puente St.
Brea, Calif. 92621
714-256-5000

Software applications packages

A family of personal computer-based software packages for managing data processing assets is now available from Vycor Corp.

The Data Center Planner series reportedly includes Configuration Planner for laying out hardware and cabling using computer-aided design, Disaster Recovery Planner, Supply Planner for tracking and controlling supplies and consumables, PC Manager for tracking and controlling PC inventory and Communication Planner for tracking communication lines.

Pricing on the system ranges from $995 to $5,000.

Vycor
8201 Corporate Drive
Landover, Md. 20785
301-459-2700

Desktop Direct Mail Corp. has announced a software package for direct-mail marketing agencies and lettershops.

Called Postage, the program reportedly operates with any fixed-length ASCII file on a personal computer to verify each address automatically against the postal carrier route tables. The product also replaces missing or incorrect directionals, the company said. Postage costs $65 and is available in a compact disk/read-only memory format. Floppy disk versions can also be ordered.

Desktop Direct Mail
P.O. Box 12944
Fresno, Calif. 93779
209-237-3801

Lexpertise U.S., Inc. has released PC Proof 1.1, an enhanced version of its proofreading software for IBM Personal Computers and compatibles. It scans text for errors in style, word usage, spelling, capitalization and punctuation. PC Proof can reportedly be used with any unformatted DOS ASCII file and costs $159.

Lexpertise U.S.
Suite 900
9 Exchange Place
Salt Lake City, Utah 84111
801-350-9100

A set of printed-circuit board-design tools for OS/2 has been introduced by Microtel Pacific Research Ltd.

Ledax Plus uses OS/2 multitasking capabilities and the OS/2 Presentation Manager graphical interface. It includes modules for schematic capture, two-dimensional drafting, routing and postprocessing and is priced at $8,795.

Micro Pacific Research
8999 Nelson Way
Burnaby, B.C., Canada V5A 4B5
800-663-6226

Peripherals

Key Tronic Corp. has announced the KB 3270 Plus keyboard, a 122-key device said to operate with any terminal emulation software package currently available for MS-DOS computers.

The keyboard reportedly incorporates a software program that allows users to load both standard and customized scan code sets for use in micro-to-mainframe environments.

The product is priced at $349.

Key Tronic
P.O. Box 14687
Spokane, Wash. 99214
509-927-5242

Key Tronic's *122-key 3270 Plus*

Advanced Technologies International, Inc. (ATI) has announced a laser printer emulator designed specifically for computer-aided design and manufacturing applications in an Autodesk, Inc. software environment.

The Autodesk Interface for ATI's LC-6026, 26 page/min printer reportedly supports graphics prints in two formats — ASCII or binary — for Autodesk's Autocad, Autosketch and Autoshade packages.

The printer and interface are priced at $24,995, the company said.

ATI
355 Sinclair-Frontage Road
Milpitas, Calif. 95035
408-942-1780

Board-level devices

A modular bubble memory board that provides up to 4M bytes of nonvolatile memory has been introduced by Memtech Technology Corp.

Designated the PCB-74, the product is reported to be field-upgradable and is compatible with the IBM Personal Computer, XT and AT. The device incorporates 512K bytes of standard memory and can emulate a hard disk drive using either PC- or MS-DOS, according to the vendor. The board is priced at $250 in small quantities.

Memtech
3000 Oakmead Village Court
Santa Clara, Calif. 95051
408-970-8900

Onset Computer Corp. has announced an erasable, programmable read-only memory emulator for running both Apple Computer, Inc. and IBM Personal Computer software, the company said.

The Romulator-2 reportedly connects to the serial port of an IBM PC or Apple Macintosh machine. It can be used for development in 16- and 32-bit systems by daisy-chaining several emulators by their single- or multidrop RS-232 interface. The unit is priced from $295.

Onset Computer
P.O. Box 1030
N. Falmouth, Mass. 02556
508-563-9000

KEDIT 4.0
XEDIT COMPATIBLE PC EDITOR

KEDIT™ is a text editor for DOS and OS/2 that supports most commands and features of XEDIT, IBM's editor for VM/CMS. But KEDIT goes beyond XEDIT compatibility with special PC-based features for a first-rate combination of mainframe power and PC flexibility.

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- **Built-in subset of the REXX** macro language included.
- **Interfaces to Personal REXX,** our complete implementation of REXX.
- **Enhanced block operations.**
- And much, much more.

"While KEDIT remains true to its heritage in retaining compatibility with the mainframe XEDIT, it is also one of the most feature-packed PC text editors around."
PC Magazine, 10/31/88

MANSFIELD Software Group
P.O. Box 532, Storrs CT 06268
(203) 429-8402

KEDIT Version 4.0 is available at $150; OS/2 version is $175. Add $3 shipping. MC, VISA, American Express. Demo version available.

KEDIT is a trademark of the Mansfield Software Group, Inc.

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NCR PERSONAL COMPUTERS

NCR

Creating value

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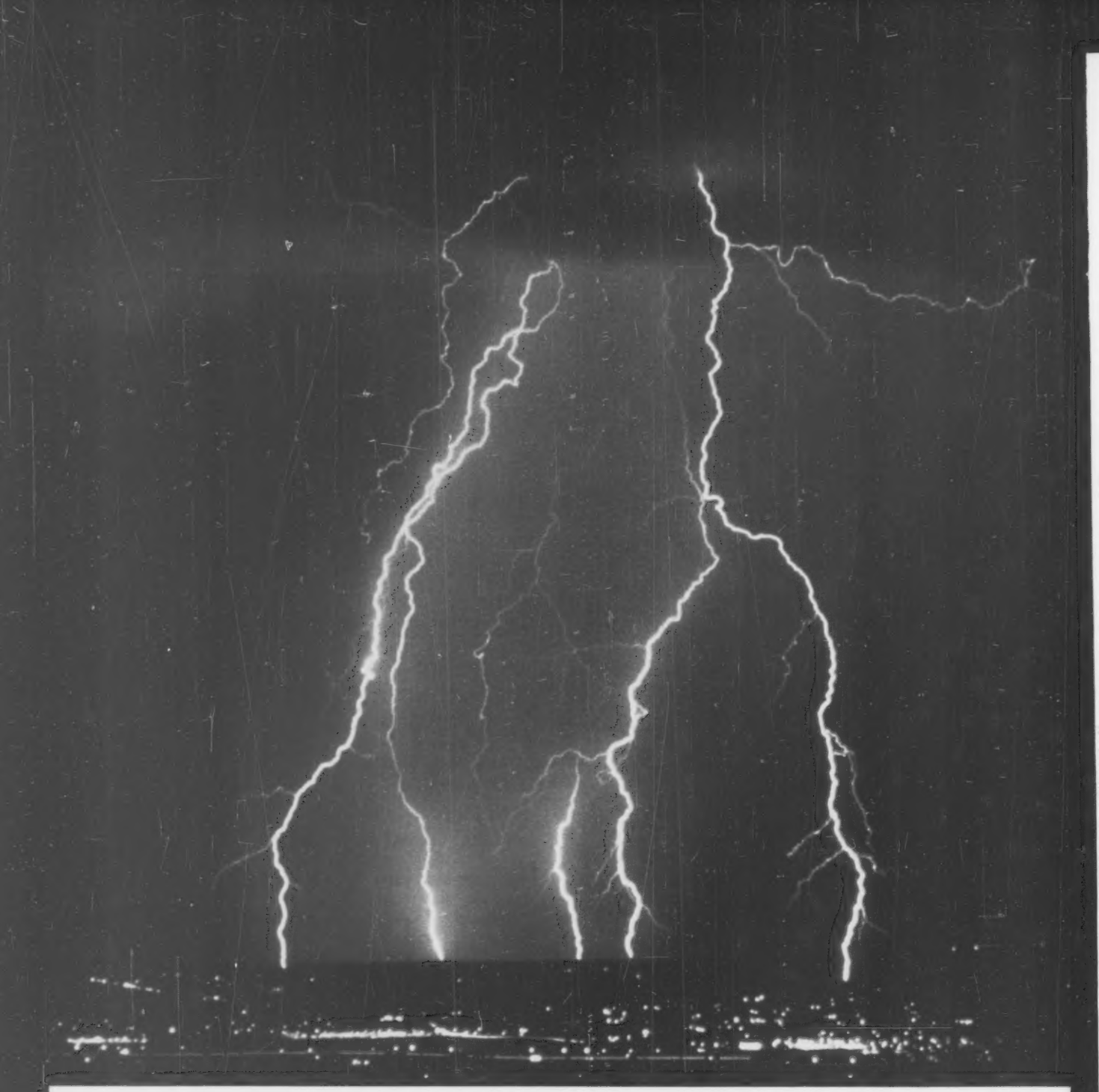

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DATA STREAM

Thomas L. Nolle

Will OSI be the solution?

Most private networks contain equipment from more than one vendor, and most private network management systems are really several proprietary systems used in parallel.

Open Systems Interconnect (OSI) network management standards now being published seem to solve this control dilemma by providing a common management point to control any vendor's equipment. But are they the solution?

Users expect a lot from standards — perhaps too much. "The notion that OSI is a peer world where management systems can be plugged together is somewhat naive," says Bill Gilbert, division manager for AT&T's Unified Network Management Architecture (UNMA). Gilbert and others in the industry identify several challenges to OSI management that users tend to overlook.

Continued on page 52

Inside

- The mating game: DEC and AT&T reveal plans to build an interface together. Page 50.
- Vendors are having a hard time luring users to their voice/data nets. Page 51.

FCC needs tools, users say

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — The Federal Communications Commission is ill-equipped to handle its current regulatory duties, let alone any new mission Congress might give it, two business user groups testified at a congressional hearing late last month.

"The FCC is seriously understaffed and underbudgeted," which leads to inadequate protection of users' interests, testified Jerry Appleby, chairman of the Tele-Communications Association (TCA) and vice-president of Security Pacific Automation Corp. in Los Angeles.

Appleby cited the FCC for superficial reviews of the regional Bell holding companies' tariff filings, poor enforcement of the FCC's cost-allocation rules and inadequate monitoring of service quality.

He testified before the House Subcommittee on Telecommunications and Finance, which is studying legislation that would transfer regulatory authority over the Bell companies' diversification plans from U.S. District Judge Harold H. Greene to the FCC.

Brian R. Moir, counsel for the International Communications Association (ICA), testified that the FCC lacks the human and technical resources to fulfill its current mandate, let alone any additional burden it would receive under the legislation.

Lack of PCs

Moir noted that the FCC has only 23 personal computers, while the similar-sized Federal Energy Regulatory Commission has 250 PCs for use in regulatory programs.

The TCA and ICA witnesses provided the panel with a litany of complaints about current FCC regulations. For example, the ICA said the FCC has not resolved users' concerns with strategic pricing or with "rate churn" — the nearly constant rate changes that disrupt user planning.

Both groups complained that the FCC often issues "boilerplate orders" that allow tariffs to take effect without ever addressing the merits of user protests. User petitions frequently are met with one-line rejections stating that the tariff "is not so patently unlawful as to require FCC investigation," the associations reported.

Appleby said that these and other user concerns should be

Continued on page 51

Managers back telco freedom

BY ELLIS BOOKER
CW STAFF

Five years after the breakup of the Bell System, a majority of business users support giving more regulatory freedom to regional telephone companies, according to a study released last month by Big Eight accounting firm Touche Ross & Co.

A majority of the 560 top executives and telecommunications managers questioned — 70% — said they favored lifting some or all of the line-of-business restrictions that currently forbid regional Bell holding companies from entering manufacturing or providing information and long-distance services. Approximately 86% said they favored removing the information services restriction, 71% would like to have the holding companies compete in manufacturing, and 63% would support the entry of those companies into long-distance services.

However, just more than half of the respondents said they thought additional deregulation was inevitable, and the study revealed that a surprisingly large minority (27%) thinks deregulation will lose momentum in the near future. About 14% said re-regulation is likely.

While most said that there are more products and services today than at divestiture, a majority also complained that service (62%) and customer service (72%) had declined since divestiture. The survey noted that sophisticated users, those with direct responsibility for telecommunications, tend to be more positive about the quality of network services.

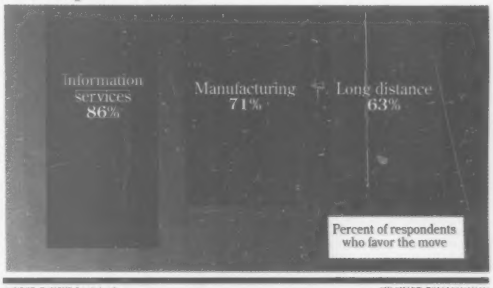
For example, only one-third of all respondents thought that telephone service had improved, but more than two-thirds of the telecommunications managers said quality was better. Still, a sizable majority, 89%, said that the U.S. telephone system remains the best in the world.

The executives largely agreed that business users, not residential, benefited most from the breakup of the Bell System. Only 13% said small businesses were "winners" in the aftermath of divestiture; just 3% thought residential customers had benefited. Another 37% said there were no winners.

Finally, more than half of the respondents supported the AT&T divestiture, although many would change how it was accomplished.

Rolling out the red carpet

Most of the 560 managers polled say that regional holding companies should be allowed to expand into information services, manufacturing and the long-distance business



SOURCE: TOUCHE ROSS & CO. CW CHART: TOM MONAHAN

Wellfleet touts net tool with graphics

BY ELISABETH HORWITT
CW STAFF

HERNDON, Va. — Wellfleet Communications, Inc. has put the finishing touches on its Transmission Control Protocol/Internet Protocol (TCP/IP)-based network management product strategy with a windowed, graphics-based workstation that is said to perform real-time diagnostics, fault management and performance management.

Simple Network Management Protocol (SNMP) Network Management Software provides users with a centralized view of a wide-area network consisting of Wellfleet bridges and routers connecting local-area networks at geographically dispersed sites, according to the vendor.

The software, which runs on a Sun Microsystems, Inc. workstation, uses icons and color-coding to notify the manager as soon as a problem occurs and provides zoom-in and diagnostics to determine where the trouble lies, according to Wellfleet.

The system can also be used to remotely reconfigure Wellfleet bridges, adjusting what types of traffic can get through or how much T1 bandwidth is used for different networking protocols or for voice vs. data, according to Wellfleet Vice-President of Advanced Engineering William M. Seifert. The system can be used to manage any network or computer equipment that supports an SNMP agent, he added.

Evaluation

Combustion Engineering, Inc. is evaluating Wellfleet's workstation product for managing its TCP/IP networks, which include Wellfleet bridges and routers supporting TCP/IP, Digital Equipment Corp.'s Decnet and other protocols.

However, the Stamford, Conn.-based firm has yet to identify a strong demand for the additional management functions provided by the product at this time, a source within the company said.

SNMP's ability to manage multivendor products over TCP/IP, actively collecting management information from gateways, hosts and workstations, make it a strong candidate for consideration at Combustion Engineering, the source said.

Wellfleet chose SNMP over the Open Systems Interconnect-based Common Management Information Protocol (CMIP) because "SNMP is there; CMIP isn't," Seifert said. "SNMP is a viable standard today, and the open systems network [available now] is TCP/IP," not OSI, he added.

Wellfleet and T1 switch vendor Newbridge Networks, Inc. are still discussing possible integration between their respective network management systems as part of a recently announced joint marketing and development agreement, according to Seifert.

"Both our network management systems run on Sun; we would like them to move to SNMP," Seifert said.

SNMP Network Management Software runs on Sun's Sun-3/50 and Sun-3/60 workstations running SunOS 3.5 or 4.0 and the X Window System. Priced at $15,000, the software is available immediately.

"IBM's newest Proprinter models have arrived with another load of features and functions to please users..."

—PC Magazine

"Proprinter gets an A."

—PC Week

"IBM has souped up both Proprinters, and the wide-carriage XL model really hauls."

—PC Magazine

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III

At last count there were nearly one hundred 9-pin printers to choose from.

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DEC, AT&T plan PBX interface

BY ELISABETH HORWITT
CW STAFF

The mating dance in the host-to-private branch exchange (PBX) interface arena is continuing, most recently with Digital Equipment Corp. and AT&T revealing plans to build an interface between their respective systems and cooperatively develop computer-to-PBX messaging specifications for submission to standards bodies.

The announcement came 3½ months after DEC and Northern Telecom, Inc. released a jointly developed link between DEC VAXs and Northern Telecom, Inc. SL-1 PBX systems.

This is the latest effort by major PBX and host vendors to generate a market for applications that integrate host databases and PBX switching facilities, industry sources said.

Providing consistent interfaces across different switches and hosts acts as "an incentive to software vendors, and even customers, to write software to enhance the switch's performance and functionality," said David Bartz, a division manager at AT&T.

Right now, the market for such applications exists primarily in vendors' public relations campaigns, according to Thomas Nolle, president of CIMI Corp., a Haddonfield, N.J., consulting firm. DEC's alliance with AT&T makes sense because "Northern Telecom does not have the market force that AT&T, as a carrier, has," he added.

The alliance does not compete with the Northern Telecom effort, according to Lois Levick, marketing manager for DEC's networks and communications group. Rather, it is part of the computer vendor's original Computer-Integrated Telephony program, announced at Telecom '87 in Geneva, to create links with different vendors' PBX systems, Levick said.

DEC and AT&T's first goal is compatibility between DEC's Computer-Integrated Telephony specifications and AT&T's Adjunct Switch Application Interface. They then hope to develop a "superset" of messaging commands that will become the basis for a joint proposal to the T1S1 and European Computer Manufacturers Association committees, spokesmen said.

Applications that currently support the DEC-Northern Telecom interface will be able to migrate to the proposed DEC-AT&T interface, Levick said. However, "users may want to enjoy some of the additional functions that will result from this new development," she said.

Northern Telecom would actually like to see DEC and AT&T submit a formal proposal to the T1S1 committee quicker than the fourth-quarter time frame that DEC has mentioned to get the discussions moving more rapidly toward consensus, said Domenick Iacovo, the vendor's manager of product planning.

AT&T, Air Force test OSI over ISDN

BY ELLIS BOOKER
CW STAFF

In a test that bridged two sometimes competing networking architectures, AT&T and the U.S. Air Force recently used an Integrated Services Digital Network link to connect Open Systems Interconnect (OSI) local-area networks and OSI-based applications.

The OSI/ISDN test at Mather Air Force Base in California was arranged in collaboration with the National Institute of Standards and Technology (NIST), which will make public its evaluation of the test results later this month.

If deemed a success, the 36-hour test could signal the addition of ISDN specifications to the next version of the Government Open Systems Interconnect Profile (GOSIP), an evolving federal OSI standard.

The test involved several 802.3-based LANs and a wide-area network using AT&T's Accunet X.25 packet network service. File transfer access method (FTAM) data and X.400-based electronic mail were sent among various OSI personal computers and workstations.

The workstations were connected via an ISDN Basic Rate Interface (BRI) to the Air Force base's existing AT&T 5ESS digital central office switch and an AT&T System 85 ACD R2V4 private branch exchange. The two switches were in turn connected to each other across an ISDN Primary Rate Interface (PRI).

An ISDN BRI contains two 64K bit/sec. B, or "bearer," channels for voice and data and one 16K bit/sec. D channel for out-of-band signaling and control. A PRI line contains 24 64K bit/sec. B channels and one 64K bit/sec. D channel.

The current GOSIP version, which became a Federal Information Procurement Standard last June, mentions ISDN as a future technology to explore.

Joining AT&T in the test were DGM&S of Mount Laurel, N.J., which supplied the ISDN terminal adapters; ICL, Inc. of Stamford, Conn., which provided the ISDN workstations, the BRI interface boards, FTAM OSI software and device drivers; Retix Corp. of Santa Monica, Calif., which along with AT&T supplied the connectivity software for linking the X.400 mail application between the PC LAN and the X.400 network; and Teleos Communications, Inc. of Eatontown, N.J., which supplied BRI interface boards and ISDN device driver software.

Look where McDonnell Douglas is today.

You may know us as an aerospace company, but you'd be surprised at how many different ways McDonnell Douglas

Users cite net management gaps

BY ELLIS BOOKER
CW STAFF

CHICAGO — Vendors outnumbered users at the annual Network Management conference held here recently. The imbalance was testimony to the fact that users with complex voice and data networks remain unconvinced that any vendor has yet achieved a one-stop solution to integrated network management.

The meeting also showed that while applauding the earnest work of standards groups such as the OSI/Network Management Forum, which is seeking interoperability standards for network management systems, users find little comfort in this activity, which they said does not address their immediate needs.

"The forum can't give me a date when specs will come out, but I have to implement a network management strategy in eight months," said Ron Akers, a software engineering group leader in the Radio-Telephone Systems Group at Motorola, Inc. Meanwhile, the OSI/Network Management Forum was making movement on the standards front at its first annual meeting in London [CW, July 3].

The three-day network management conference, which attracted approximately 200 people, drew leading vendors of network management systems: Digital Equipment Corp., with its as-yet-nonexistent Enterprise Management Architecture (EMA); AT&T, with the Netmaster component of its Unified Network Management Architecture; Hewlett-Packard Co., with its Openview; and, for the first time, IBM, which demonstrated its recently enhanced, graphical-interface Netview and Netview/PC.

With the exception of DEC, all the vendors demonstrated their products. DEC used the event to give a progress report on its long-awaited EMA, a product that was initially described in 1987.

According to DEC product marketing manager Anthony Viola, EMA is "on track," and he intimated DEC would make its initial EMA product announcements — targeted at Decnet environments — sometime in November.

Viola also said DEC had identified some 200 vendors and would make announcements about EMA support by the end of the year.

Nevertheless, the promises — from standards groups and the vendors — failed to win the hearts of the few users at the meeting.

"I heard sizzle from the vendors," said a manager from Kennametal, Inc. in Latrobe, Pa., who requested anonymity. None of the demonstrated products, he said, will combine his Netview-managed Systems Network Architecture network with a Decnet network, now being run by Vitalink Communications Corp.'s local-area network management product.

Referring to the promising work of the OSI/Network Management Forum, he said, "It's gravy on the meatloaf . . . and the meatloaf, the products from vendors, just aren't there yet."

Vendors feel the heat

Like many other institutions, First Chicago Corp. is looking for integrated network management for its multinode, two-continent Systems Network Architecture and X.25 voice and data networks. However, the bank, which hopes to implement the project in six to eight months, is holding vendors' feet to the fire with a unique request for information (RFI), released to 15 vendors in June. The 65-page document asks vendors for solutions solutions — including proprietary ones — to the bank's current needs. What is unique about the RFI, said systems officer Tom McGovern, is that it also asks the vendor to spell out its migration path to open standards. "Our overriding consideration is what can they do to help us today," said McGovern, who describes First Chicago's network operations center as "literally a wall of monitors." But, he added, Open Systems Interconnect will eventually be a reality, and vendors responding to the RFI must specify their plans regarding support for OSI network management interfaces such as ISO's Common Management Information Protocol.

ELLIS BOOKER

FCC

FROM PAGE 47

addressed and ratepayer safeguards should be in place before the Bell companies are allowed to enter the currently restricted businesses. Greene's AT&T divestiture judgment prevents the Bell companies from entering the information services, equipment manufacturing and long-distance businesses.

TCA warned that unbridled diversification by the Bell companies could result in substantial rate increases if the Bell companies shift the costs of new business ventures to ratepayers, as well as deterioration of service quality if the Bell companies devote more resources to the new ventures than to their traditional networks.

Appleby said users would welcome the Bell companies as new suppliers as long as safeguards are enacted so that they cannot use their monopoly position to take unfair advantage of competitors or ratepayers.

Moir said that the history of the telecommunications industry shows that allowing monopolies to enter some markets may actually reduce users' choices and the potential for competition.

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Nolle

FROM PAGE 47

At best, international standards for network management are only available in draft form. The underlying protocol, called the Common Management Information Protocol (CMIP), has been defined at the draft level, and many vendors are comfortable developing products that conform to this version.

But standards defining just what management facilities should be available — in the areas of fault management, configuration management, performance management, security management and accounting management — are still in pre-draft debate. The full standards set is unlikely to be ready before 1992.

Lack of standardized facilities from all network vendors would seriously affect the benefits of standards-based management. But there are other standards issues as well. The OSI management "model" defines networks in terms of "managed objects," which possess "attributes" that may be altered.

No formal definition

The formal standards-development process has not yet defined just what these objects and attributes might be. What is "fallback mode" to one T1 cross-connect switch vendor might be "operating state" to another.

Another potential problem is that right now, a network device must fully support all seven OSI layers before they can be managed by a CMIP system. Virtually no OSI support is available on today's private networking hardware, and few vendors will implement complex OSI protocols on network devices smaller than major switching nodes.

Logic favors some form of high-level OSI management "gateway" linked to existing network management systems to provide management of devices that are not fully OSI-compliant.

Linking those non-OSI network management systems won't necessarily be either easy or inexpensive. AT&T, whose UNMA is the only OSI management product with any significant field exposure, has allowed third-party vendors to implement a simplified alarm protocol to link with UNMA rather than insisting on full support of the OSI standards (which AT&T implements as the Network Management Protocol, or NMP).

Our pleasure

IBM has thoughtfully allowed OSI devices to send management information to Netview via its OSI Communications Subsystem announced last fall. IBM has admitted that that this approach is expensive but adds that it is a "transitional solution."

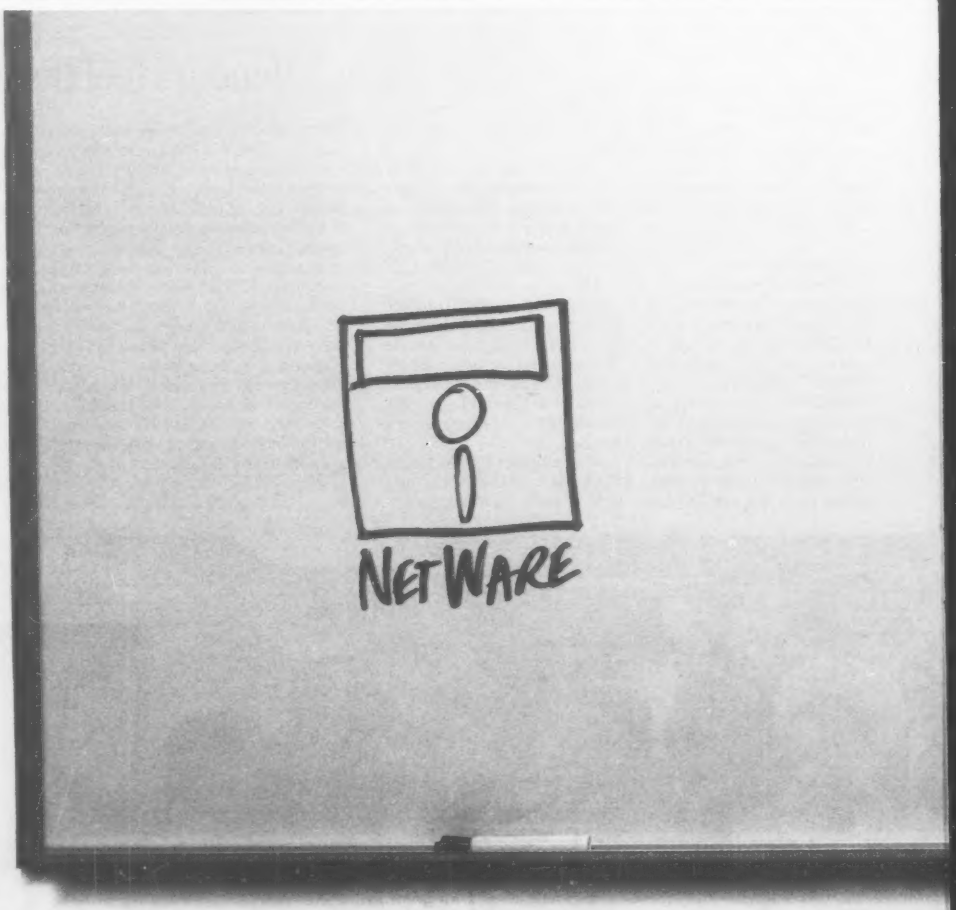
One hopeful sign is that IBM has conditionally promised to join the OSI Network Management Forum. This is a group of vendors currently struggling to narrow down the options available within OSI to ensure interoperability among their respective products.

This is useful as far as it goes. But the Forum does not want to take on the job of setting up testing to ensure that vendors' products conform to the OSI network management specifications it chooses.

That task will probably fall to the Corporation for Open Systems (COS) — whenever it has the time. COS has said in the past that it is willing to develop such tests but has not yet completed work on the test procedures for other standards such as X.400.

The Forum has made a commitment to demonstrate open management in 1990. But none of this will necessarily address users' initial problem of how to manage their multivendor networks today. Unless the industry can define a common set of standards, find a viable way to test for conformance to them and persuade vendors to retrofit existing network hardware to support them, standards-based management may still be a dream when the turn of the century arrives.

Nolle is president of CIMI Corp., a communications consulting company based in Haddonfield, N.J.



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NEW PRODUCTS

Local-area networking hardware

Traveling Software, Inc. has announced Release III of Laplink, the company's hardware/software connectivity product for IBM Personal Computer and compatible laptop and desktop computers.

According to the vendor, the latest version is formatted on 3½- or 5¼-in. disks and includes a six-headed universal serial and parallel cable. The product reportedly performs serial and port file-transfer functions at speeds over 3M byte/min.

Laplink Release III costs $139.95.

Traveling Software
18702 N. Creek Pkwy.
Bothell, Wash. 98011
201-487-1284

H-Three Systems Corp. has announced a Token-Ring card designed for Apple Computer, Inc. Macintosh SE computers.

Dubbed Macring, the product reportedly fits into the Macintosh SE expansion slot and permits users to join existing personal computer networks that connect with IBM mainframes. According to the vendor, the card is compatible with Novell, Inc.'s Netware and can also be used with IBM 3270 emulation software. Macring costs $795.

H-Three Systems
Suite 204
100 Park Drive
Research Triangle Park, N.C. 27709
919-549-8334

Local-area networking software

A remote-control, personal computer file-transfer software package is now available from Palisades Research.

Called Quasimodem, the product includes host and remote sites in one package and offers file-compression utilities for faster transfer functions, according to the vendor. The software reportedly transfers data via serial cable at speeds up to 115.2K bit/sec.

Quasimodem costs $99.

Palisades Research
869 Via De la Paz
Pacific Palisades, Calif. 90272
213-459-7528

RSA Data Security, Inc. has announced two personal computer-based network security products.

RSA Sign and RSA Check reportedly enable network users to electronically sign computerized files such as electronic mail messages. The software also facilitates the checking of signed files for unauthorized changes, the vendor said. The products run in an IBM Personal Computer or compatible environment and are available bundled together in the Authorizer's Kit, priced at $295.

RSA Data Security
10 Twin Dolphin Drive
Redwood City, Calif. 94065
415-595-8782

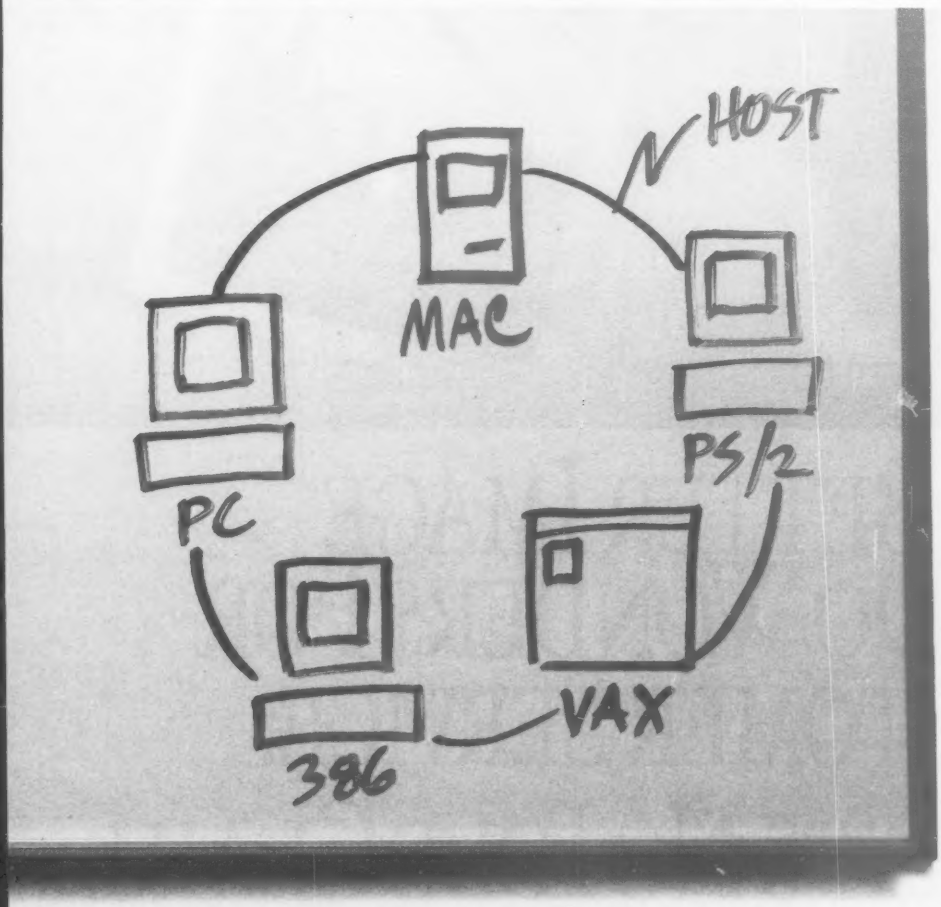
Network management

Northern Telecom, Inc. has announced a system that reportedly facilitates the configuration of telephone lines and trunks, manages features and reports traffic for users of its Meridian SL-1 systems.

According to the company, three Meridian Manager options are available: Station Administration, Work Order System and Traffic Reporting. All run as applications under MS-DOS and are supported on the IBM Personal Computer AT, the IBM Personal System/2, Compaq Computer Corp. Deskpro and Hewlett-Packard Co. Vectra personal computer families.

Available in the third quarter of 1989, Station Administration sells in the range of $2,750 to $14,850. The Work Order System and the Traffic Reporting option sell for $4,950 to $14,850 per system.

Northern Telecom
200 Athens Way
Nashville, Tenn. 37228
615-734-4000



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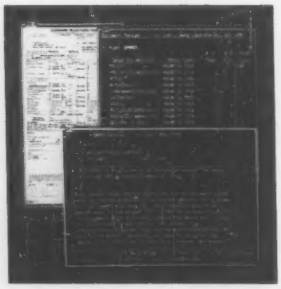
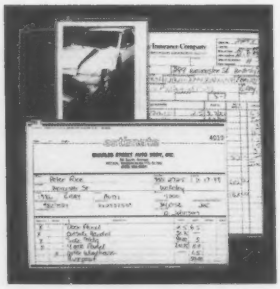


Touch a button and you have a data window, a text window, an image window right in front of you. Presto!



A guy in the field wants to verify the estimate. Click! The adjuster's handwritten report, the estimate, and the photo are right there on the screen.

Actual Wang computer screens shown here.

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Customer-premises equipment

Davox Corp. has announced the Smart Connect Voice/Data software option for the company's Computerized Voice Response (CVR) System 2000.

The option allows the CVR 2000 to transfer a phone call and data display simultaneously to an operator when a caller using a Touch-Tone telephone requests operator assistance.

Smart Connect costs $5,000 for a single-system CVR 2000 site and $8,000 for installations with multiple CVR 2000s.

A typical 16-line, two-agent CVR 2000 system, including Smart Connect, application software, proprietary controllers, workstations and an interface unit, is priced at approximately $100,000.

Davox
3 Federal St.
Billerica, Mass. 01821
508-667-4455

Franklin Datacom, a division of Franklin Telecommunications Corp., has announced an asynchronous coprocessor with eight RS-232 ports.

Dubbed the ACP-186, the product reportedly was developed to provide X.25 and asynchronous terminal support for the company's multiprotocol packet assembler/disassembler (PAD). Features include downline loading of profiles of demand and several network management functions such as an on-line datascope, the vendor said.

ACP is priced from $1,895 to $2,995.

Franklin Datacom
733 Lakefield Road
Westlake Village, Calif. 91361
805-373-8688

The Logical Co. has announced two fiber-optic controllers designed for use with Digital Equipment Corp. VAX and PDP-11 computers.

The BCU-1000 is reported to be a Unibus-compatible controller for the VAX and PDP-11 series, while the BCQ-1000 offers compatibility with the DEC Q-bus architecture of the Microvax and Micro PDP-11 series. The products were developed to repeat, extend or convert the host computer's bus. The controllers are priced at $1,295 each.

The Logical Co.
P.O. Box 549
Cottage Grove, Ore. 97424
503-942-3610

Amnet, Inc. has announced a graphics software package for its Nucleus 7000 series of IBM Personal Computer AT-based packet-switching systems.

The N7900 Color Graphic User Interface demonstrates operating conditions on a multinode X.25 packet-switching wide-area network from the global level down to the RS-232 connector pins on individual ports, the company said. Help screens, analysis and trouble-shooting facilities are also provided.

The package costs $4,950.

Amnet
1881 Worcester Road
Framingham, Mass. 01701
508-879-6306

Two fiber-optic hubs have been brought out by David Systems, Inc.

The Expressnet Fiber Optic Hub can reportedly be used to create high-speed 10M bit/sec. IEEE 802.3 Ethernet backbone networks with fiber-optic cable.

According to the vendor, this hub is capable of linking multiple hubs, computers and workstations over a distance of up to 1 km. A fiber-optic medium attachment unit is placed beside the second hub or workstation to terminate the fiber link.

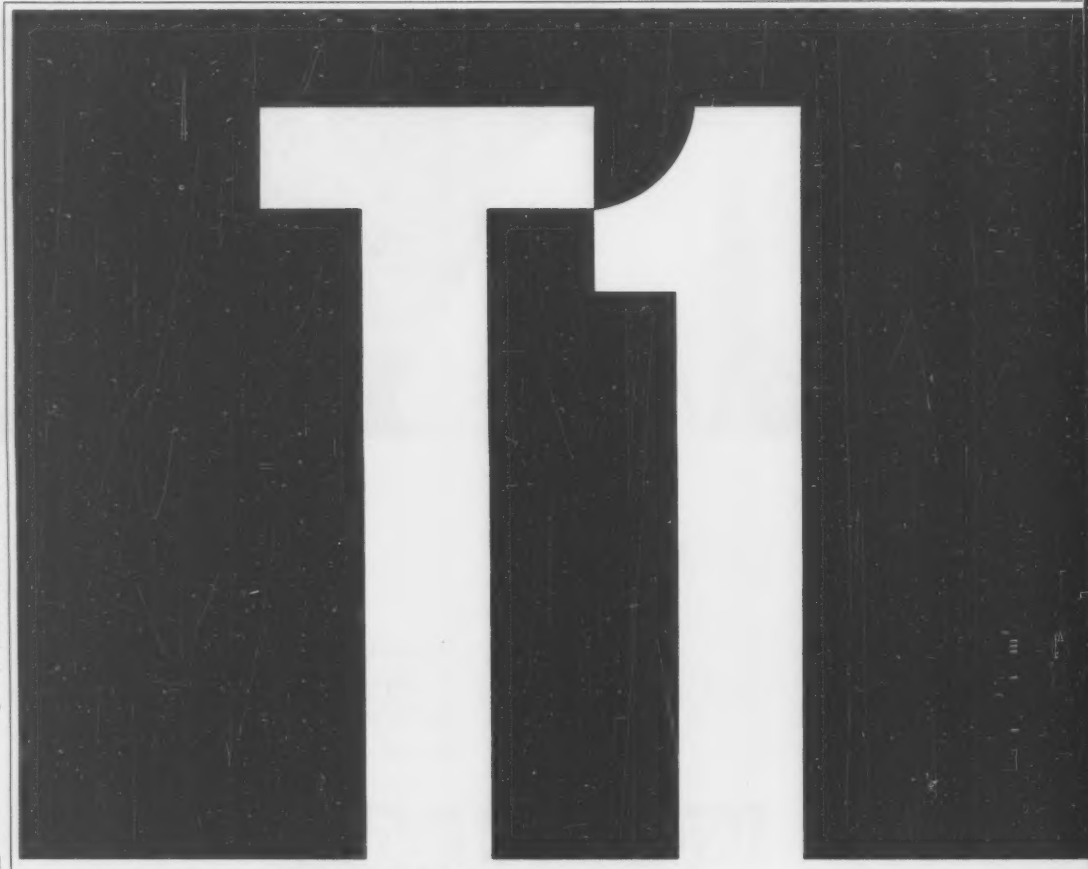
The Expressnet Superhub provides rack-mounting for larger configurations of both twisted-pair and fiber-optic hubs from David Systems.

It is said that a possible 10 hubs can be linked, allowing up to 108 connections to be made from a single point.

The price per port for Expressnet Fiber Optic Hub is $895. The Hub alone costs $1,780, and the associated fiber-optic medium attachment unit is $450.

Superhub is priced at $995.

David Systems
701 East Evelyn Ave.
Sunnyvale, Calif. 94086
408-720-8000



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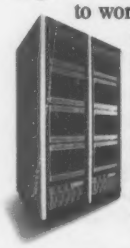

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Protocol converters

Cisco Systems, Inc. has announced a protocol translator designed for users wishing to integrate Transmission Control Protocol/Internet Protocol (TCP/IP) and X.25 installations.

The device reportedly combines the functions of a TCP/IP terminal server and an X.25 packet assembler/disassembler to allow full intercommunication between networks based on the two protocols. Approximately 100 concurrent connection translations are supported. It is priced at $9,400.

Cisco Systems
1350 Willow Rd.
Menlo Park, Calif. 94025
415-326-1941

Electronic mail

A communications system for portable computer users has been introduced by Grid Systems, Inc.

Called Fieldnet, the wide-area network store-and-forward system runs in concert with Banyan Systems, Inc.'s Virtual Network Software, or Vines, and is reportedly designed to give mobile professionals the ability to communicate with other parts of their company. Features include electronic mail, invisible mail, secretarial functions, batch processing and software distribution capabilities.

Fieldnet/386 for a headquarters environment costs $25,950, Fieldnet/SX for connecting regional offices lists at $19,450, and the Fieldnet/EXP for portable server systems is priced at $21,450.

Grid Systems
115 Flanders Rd.
Westboro, Mass. 01581
508-898-1000

Modems

Ark Electronic Products, Inc. has expanded its V.32 modem line with the DL 424.

The product is reported to be a full-range V.32, V.22 bis, V.22 and Bell 212A modem that provides full-duplex data transmission over two- and four-wire lines. The unit also offers Microcom Networking Protocol Class 5 with data compression capabilities. It is priced at $1,795.

Ark Electronic
P.O. Box 2169
Melbourne, Fla. 32902
407-724-5260

Micro Electronic Technologies, Inc. has introduced a 2,400 bit/sec. external modem with a port-saving Pass Thru feature, the company said.

The MET 2400X automatically connects a printer, mouse or other peripheral to the computer when the modem is turned off, according to the vendor. Designed for asynchronous and synchronous communications, the Hayes Microcomputer Products, Inc.-compatible device is priced at $295, which includes a five-year guarantee for repair or replacement.

Micro Electronic
35 South St.
Hopkinton, Mass. 01748
508-435-9057

BT Datacom has announced an international version of its 4142TCX modem, which reportedly includes phase roll capabilities to allow full 14.4K bit/sec. throughput of data over international dial-up circuits.

The product includes duplex single-dial backup functions and incorporates both V.33 and V.32 standards, the vendor said.

The unit has a price tag of $2,495.

BT Datacom
Suite 100
3701 Concorde Pkwy
Chantilly, Va. 22021
800-648-3532

Codex Corp. has reduced prices on its 2600 series of modems by an average of 30%, according to the company.

The four-channel 2680, a 19.2K bit/sec. leased-line modem, has been reduced from $11,645 to $7,200. Other products affected by the price changes include the 2620, 2630, 2640, 2650 and 2660 modems.

Complete information is available from the vendor.

Codex
Maresfield Farm
7 Blue Hill River Road
Canton, Mass. 02021
617-364-2000

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Omnimux 8000. Now, that's more like it. But then, that's Racal-Milgo. Reaching beyond today's standards.

*Datapro, *User Ratings of Network Management Systems*, September, 1988.
**International Data Corporation (IDC), *Quantitative Analysis of the Network Management Market*, October, 1988.

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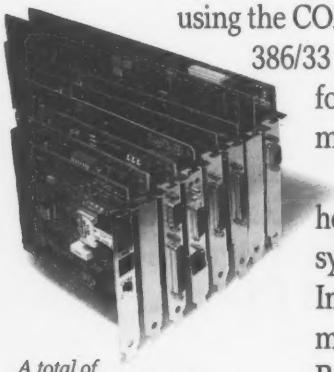

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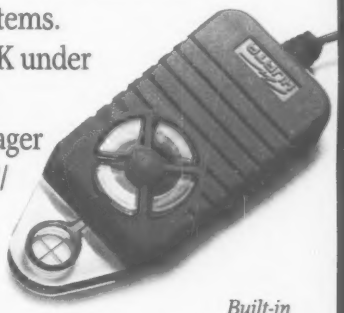
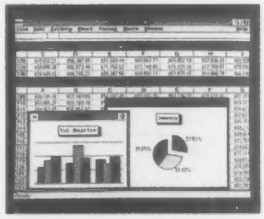


Built-in interfaces make it easy to connect pointing devices, printers, plotters or other peripherals without using an expansion slot.



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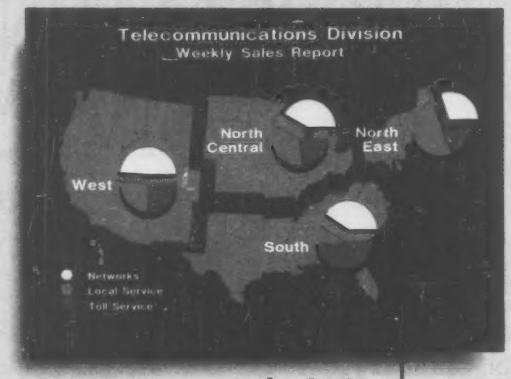

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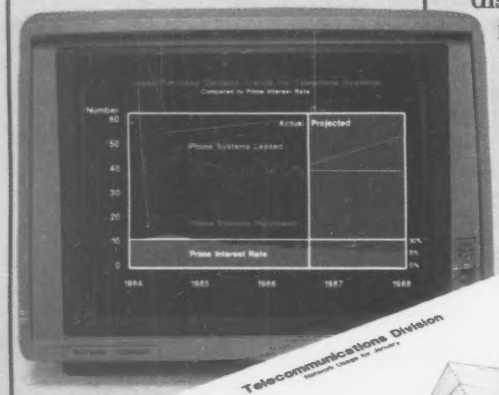

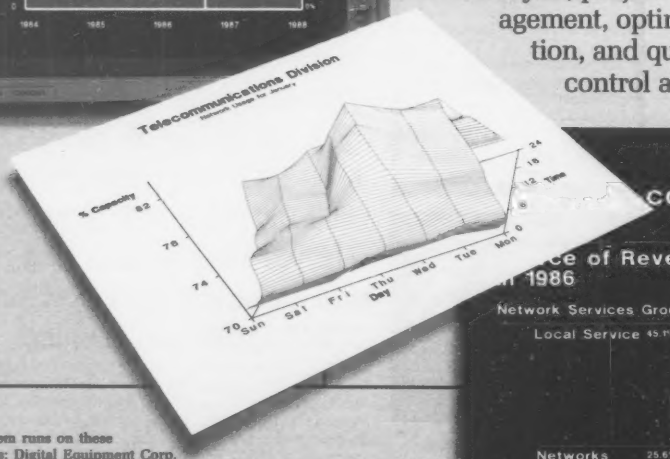

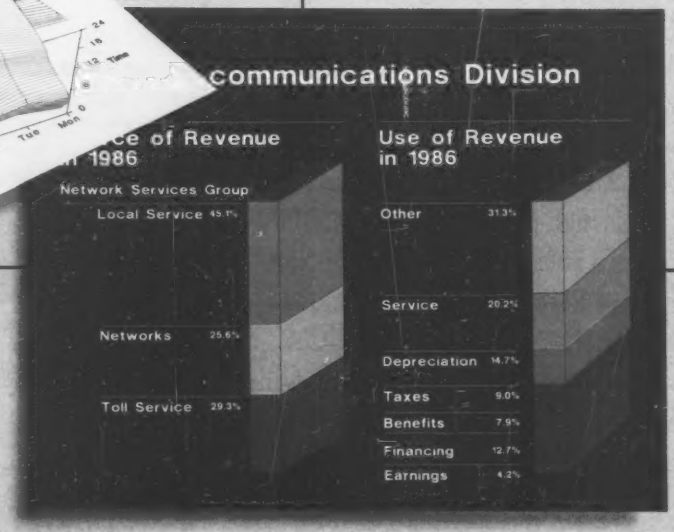

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MANAGER'S JOURNAL

EXECUTIVE TRACK

David C. Carter Jr. has been named director of telecommunications at **Washington Hospital Center**, an 871-bed, nonprofit teaching hospital in Washington, D.C.

Carter, 43, is expected to handle such tasks as implementing the integration of the hospital's voice and data communications systems and developing automated tracking systems. He previously was an AT&T communications systems consultant and technician. Carter, who served in the U.S. Marine Corps and is a Vietnam veteran, obtained an MBA in 1987 from Southeastern University in Washington, D.C.

.....

Col. John W. Davies assumed command of the **U.S. Air Force Computer Acquisition Center** (AFCAC) on June 1, succeeding Col. Richard L. Ferro, who retired after 25 years of Air Force service.

AFCAC, located at Hanscom Air Force Base, Mass., is a central selection and purchasing agency that serves Air Force commands and other federal agencies.

Davies was commander of the 2,163rd Communications Group, which falls under the Space Communications Division of the Air Force Communications Command at Peterson Air Force Base, Colo. Previously, Davies was director of acquisition support at the Air Force Space Command's systems integration unit. Davies has served in the Air Force in a variety of positions involving communications since 1966.

.....

Who's on the go?

Changing jobs? Promoting an assistant? Your peers want to know who is coming and going, and *Computerworld* wants to help by mentioning any IS job changes in Executive Track. When you have news about staff changes, be sure to drop a note and photo or have your public relations department write to Clinton Wilder, Senior Editor-Management, *Computerworld*, Box 9171, 375 Cochituate Road, Framingham, Mass. 01701-9171.

Lending nonprofits a helping hand

Information Technology Resource Center assesses IS needs, provides hands-on training

BY ELLIS BOOKER
CW STAFF

Lawrence Hall Youth Services has been helping the abused and abandoned children of Chicago for 124 years. But when the child-welfare agency needed improved information technology to do its social work better, it had a place to turn for help itself.

Lawrence Hall is a member of the Information Technology Resource Center (ITRC). In the five years since it set up shop in donated space at the Chicago Museum of Science and Industry, ITRC has provided computer consulting and training to nearly 600 nonprofit organizations in and around Illinois.

For these perpetually understaffed and underfunded organizations, ITRC's services, which include an initial assessment of an agency's IS needs as well as hands-on training and technical troubleshooting, fill an immediate need.

DAVID JOEL

ITRC member Maureen Kelly *taps an impressive collection of vendor-donated software*

"I can't say enough good things for them," says Maureen Kelly, development coordinator at Lawrence Hall Youth Services. Earlier this year, when Lawrence Hall decided to upgrade an antiquated Wang Laboratories, Inc. minicomputer used for word processing, it turned to ITRC.

"They took us through a step-by-step process, looking at what systems were available and constantly asking us to define our needs," Kelly says, adding that the center's information "let us talk to vendors intelligently."

Lawrence Hall hopes to decide on a relational database package and three personal computers shortly, says Kelly, who adds that her experience in the ITRC microcomputer lab convinced her to switch the desktop publishing program she had intended to buy.

Places such as Lawrence Hall were desperate for information systems advice when ITRC was established by Chicago Community Trust, the area's largest community foundation, in the summer of 1984.

"There were lots of horror stories about equipment nobody knew how to use, obsolete equipment, no trained staff and executive directors who didn't know enough about computerization to understand the money decisions they were making," says ITRC Executive Director Deborah Strauss.

"The Trust was dissatisfied with the quality of the grant proposals for computerization they were seeing," Strauss says.

Common problems included poor planning and a lack of objective "or even knowledgeable information" about computer hardware and software.

Although ITRC moved out of the museum in December — "it became clear we need to be centrally located," Strauss explains — and is now settling into a suite of offices in Chicago's downtown Loop, its goals have not changed.

"Mainly, we try to look at the whole information needs of the organization," Strauss says.

But unlike private-sector IS consultants, who offer much the same promise, the center's not-for-profit status ensures that its rates are in line with the budget realities of the nonprofit world. Annual membership, depending on the size of the organization, is just $200 to $500 — about what many consultants charge for a single day's work.

For the fee, 300 current ITRC members receive tickets to 25 requirements analysis workshops, three to seven hours of hands-on computer courses and two to four hours of ITRC's three-person program staff, plus a desktop-published monthly newsletter and free access to the center's microcomputer lab.

Continued on page 64

How do you rate? (with your users, that is)

BY ALAN J. RYAN
CW STAFF

How does your shop rate on customer satisfaction? If information systems are meeting the company's business needs properly, the customers are probably happy, according to a new study by the Quality Assurance Institute (QAI) in Orlando, Fla.

According to the QAI research, however, systems departments have a long way to go to meet user concerns.

In a survey of end users at 124 companies, QAI found that of the top 20 characteristics by which users rate the quality of their IS departments, functional requirements was No. 1.

Other top five characteristics included accuracy of output, system reliability, response to problems and online availability.

According to QAI, the quality characteristics ranked most important by customers probably indicate their current unsolved problems. For example, data security ranked 20th in the list, but not because it is unimportant. Rather, the level of quality currently being provided is deemed satisfactory by the customer, the results showed.

Working on timeliness

Similarly, the report said, highly ranked quality characteristics will drop in importance when they are no longer a problem to end users. Timeliness of output, ranked eighth on the list, is expected to drop lower because IS departments have indicated they are working on this problem.

The study also highlights the importance of IS managers' willingness to work with users. Together, they should establish a list of quality characteristics and rank them in order of importance. For instance, because it may not be possible to fully satisfy any customer, the IS manager should determine through user interviews whether perfect data security is more important than ease of use, because they might not go hand-in-hand.

Improving quality is a continuous process since customers who might initially be satisfied with one level of quality will soon demand even higher quality, the report said. To successfully approach the dilemma, the report said, the IS managers should concentrate on the quality characteristics at the top of their companies' lists. Have customers continually revamp that list, so as problems are addressed they will drop on the list and the systems department will be alerted to new concerns.

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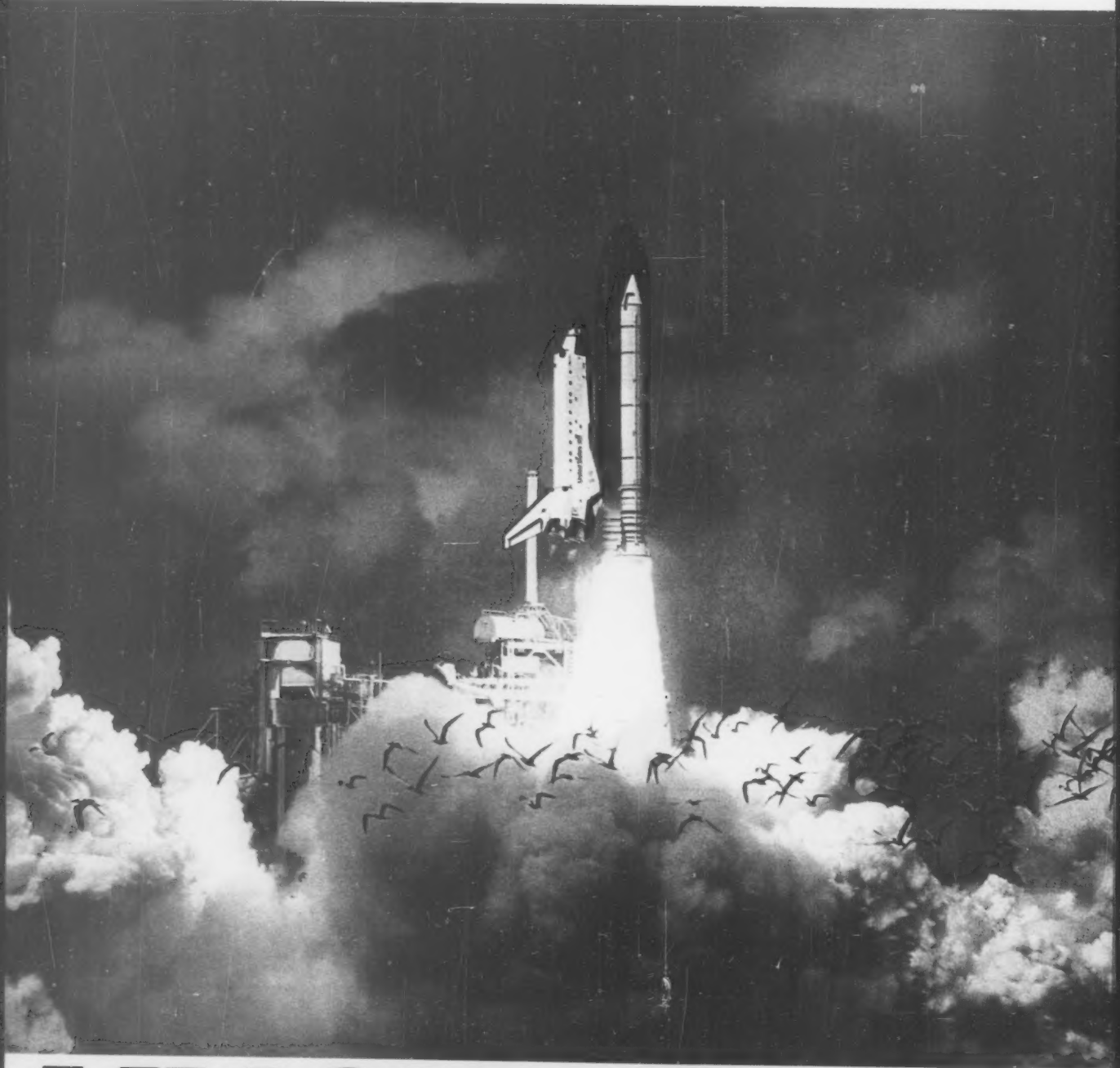

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Nonprofits

FROM PAGE 61

The lab is the heart of ITRC's offices. Adjacent to a small classroom, it contains 23 personal computers, donated over the years from the likes of Apple Computer, Inc., IBM and AT&T.

Practically every personal computer is used by the lab, from an old MS-DOS-based Kaypro Corp. model to the lab's latest acquisition, a Macintosh II machine.

The lab also has two local-area networks, and a nearby conference room features a wall of floor-to-ceiling shelves stocked with commercial PC software in every category.

"We have a much easier time getting software donations," Strauss notes. Software publishers, she says, see the donated programs, which are used for training and evaluation by ITRC members, as an inexpensive marketing tool.

Several donors

But the center's fund-raising report for the fiscal year ended March 31 does credit several computer hardware makers — including Apple, AT&T, Tandem Computers, Inc. and Unisys Corp. — among its 25 or so contributors.

About two-thirds of the center's $400,000 operating budget comes from contributors and grants; the rest comes from membership dues.

One satisfied user is Carla Berry, executive coordinator of the Chicago Association for the Education of Young Children, which used the center when it decided to computerize its paper record system.

"I went through ITRC's core planning program and was able to project our needs for the next three years," Berry says.

In fact, the substance of ITRC work was incorporated into the association's grant proposal for

Thanks anyway

"At least once a month someone calls me saying they have a mainframe to give away ... and the maintenance is only $20,000 a year!" moans Deborah Strauss, executive director of Chicago's Information Technology Resource Center.

Strauss observes that the financial realities of nonprofits are hard for corporations to understand.

"Nonprofits can't capitalize, they can't amortize over several years, and most think twice about any expense over $25," she says.

If a corporation wants to donate hardware to a nonprofit organization, make sure it is "moderately priced, current technology," Strauss says. By "current" she means MS-DOS- and Macintosh-based systems, the two platforms of choice in the nonprofit world.

Vendors dealing with nonprofit groups, Strauss explains, should realize that these organizations tend to make decisions by committee, which can make them slow-moving — except at the end of the fiscal year.

"June 30 tends to be the end of the fiscal year for nonprofits," Strauss says. "We get these calls on June 15 saying, 'I just got a $30,000 grant for computers, and if I don't spend it by the end of the month, it's gone!' "

About those companies that offer mainframes, Strauss is generous. "They think they have a valuable piece of equipment that someone will want," she says. Others, she suspects, are just looking for a tax write-off.

ELLIS BOOKER

three personal computers, word processing and database software. The grant was recently awarded, a success Berry partly credits to ITRC.

According to ITRC's Strauss, there are 5,000 to 6,000 nonprofit organizations in the six-county Greater Chicago area. This month, she hopes to add another full-time staff member to handle "very small, community-based organizations that can't see their way clear to buying a computer."

Classes available

For a minimal fee of $25, these groups can attend a series of targeted computer literacy workshops and then use the equipment in the microcomputer lab for a few hours each week.

Another project — Strauss says it is still a year away — will be to team computer-literate volunteers with nonprofit groups.

Still another possible service, Strauss says, is volume-buying programs for ITRC members. The center has already negotiated such an arrangement with retail chain Egghead Discount Software, Inc.

"Where the need for computerization was self-evident for business three years ago," Strauss concludes, "it's only been that way for nonprofits for the last year."

She goes on to note that, like other businesses, nonprofit companies are expanding their use of computers beyond the clerical staff.

"We're seeing our training zooming up," she says.

Nonprofit help line

If the local PTA, high school or women's shelter calls your information systems department asking for help on their personal computers, desktop publishing or other information technologies, try referring them to the Technology Resource Consortium in Washington, D.C. Its 14 member organizations across the U.S. have been created to help nonprofits with their IS questions.

Nonprofit organizations should write to Technology Resource Consortium, c/o Public Interest Computer Association, Suite 1015, 1025 Connecticut Ave., N.W., Washington, D.C. 20036.

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Papers for conference requested

The 13th Western Educational Computing Conference will be held in Irvine, Calif., Nov. 15-16, 1990, under the aegis of the California Educational Computing Consortium.

The conference directors are now seeking papers dealing with computers and computer applications in any area applicable to college- or university-level instructors and administrative personnel. Send two copies of original papers by April 21, 1990, to Dr. Oliver Seely Jr., CSU Dominguez Hills, Chemistry, 1000 E. Victoria St., Carson, Calif. 90747. Deadline for submissions is April 21, 1990.

The Hi-Tech Service & Maintenance Exposition and Conference, slated for Oct. 31 to Nov. 2 in Chicago, is seeking speakers to address all aspects of maintenance and repair. Suggested topics include strategic management of service businesses, use of high-technology service as a strategic differentiator, parts control and distribution, third-party maintenance services, reliability and maintainability analysis and the use of artificial intelligence in maintenance. Authors interested in speaking at the conference should send an abstract of their proposed paper to Technical Conference Chairman Donald Blumberg, D. F. Blumberg & Associates, 1260 Virginia Drive, Fort Washington, Pa. 19034.

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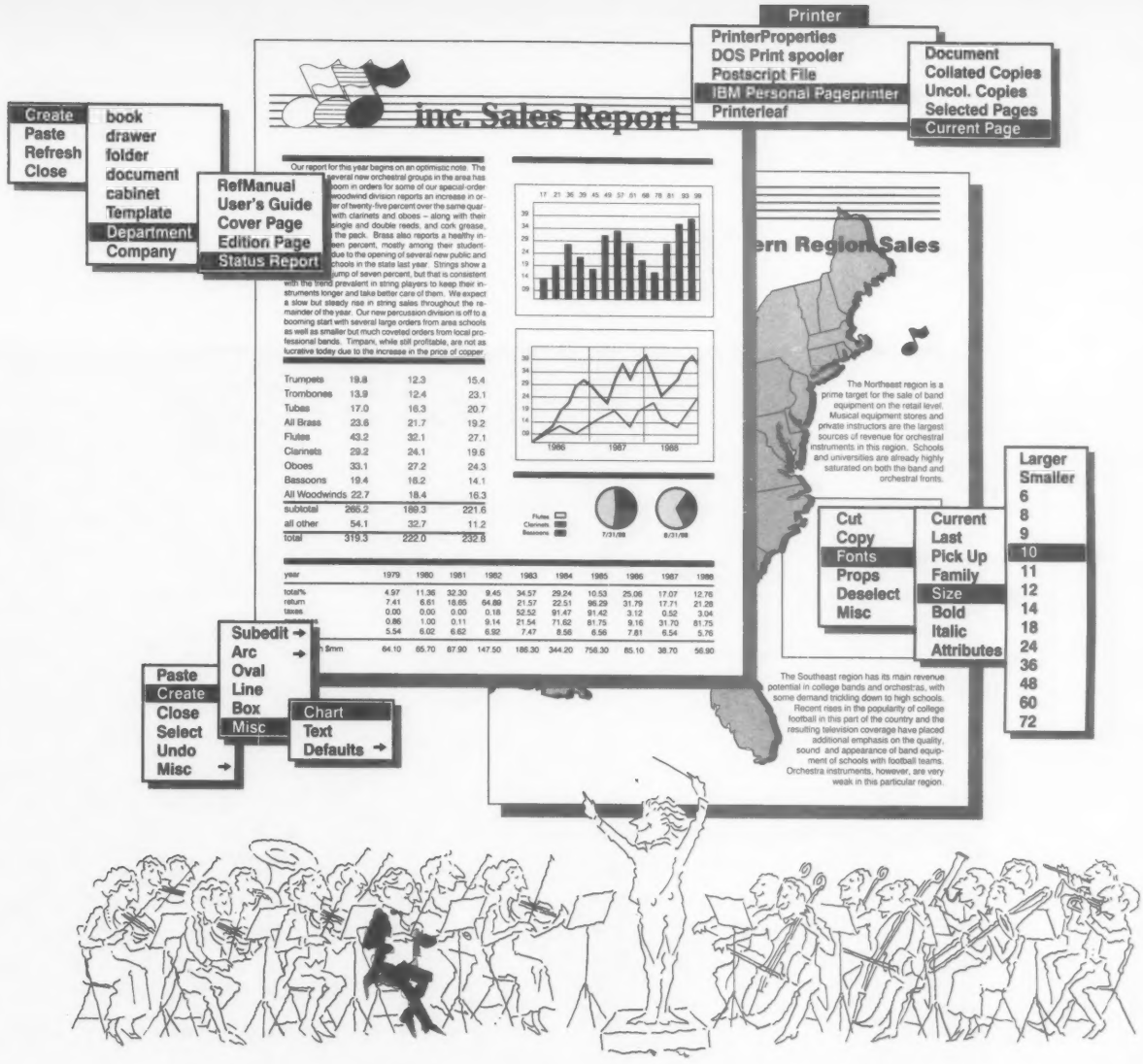

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Survey: Narrow IS security view

BY ROBERT MORAN
CW STAFF

NEW YORK — Despite an increased sensitivity to the importance of security in corporate America, "The 1989 Ernst & Whinney Computer Security Survey Report" concluded that most organizations have a myopic view of information security.

"There are vast disparities between the levels of practice within organizations," said William Murray, an information systems security staff member at Ernst & Whinney. "Organizations do a very good job on one area and tend to do a very poor job on another."

More than 84% of the respondents to the survey said that information security is an important issue in the organization. But only 39% reported practicing continuity planning, saying that it is limited to IS and done irregularly.

Even those organizations, Murray said, "tend to treat it as either as a data processing issue or as an ad hoc issue rather than as a business issue."

Murray says *PCs are a new vehicle for intrusion*

Given the new security environment created by distributed computing, networking and interconnectivity, Murray said "it is insufficient and inefficient for data processing to attempt to solve the problem."

IS understanding

IS understands that systems are vulnerable, but the rest of the business does not, according to Murray.

The lag in understanding is also evident in the corporate response to network security. Only 17% of the organizations regarded network security as important, and a mere 5% said that they use secret codes for confidential data in public networks.

"We have to move away from reusable passwords to passwords that can be used only once," Murray said.

Murray said the increased use of personal computers is also driving the necessity for one-time passwords. According to Murray, 20% of those surveyed report using or considering using one-time passwords.

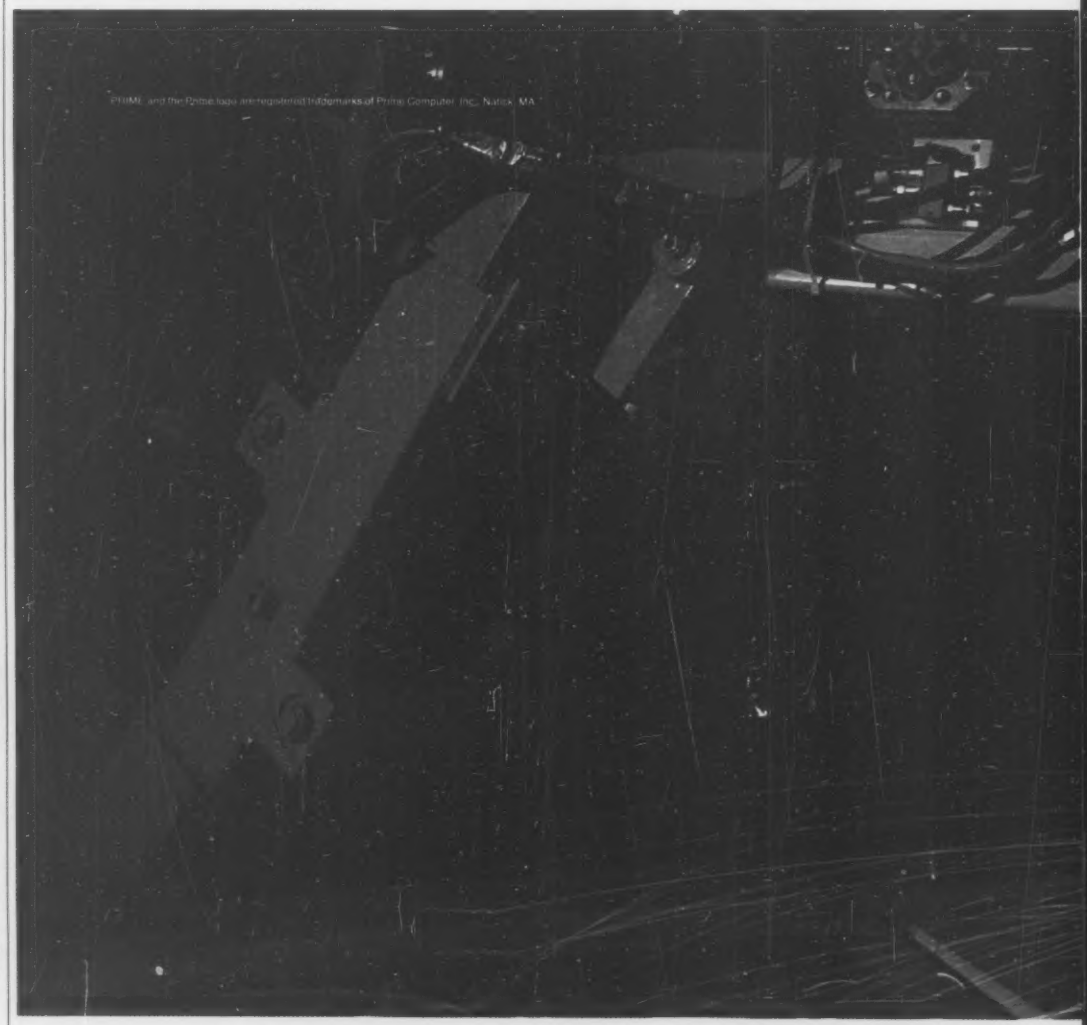
Murray said that PCs have become a new vehicle for intrusion as they replace host-dependent terminals and as networks and switches replace terminal-to-host links.

While reusable passwords were once adequate in the old environment, PCs can now access multiple applications, and users in networked environments are now vulnerable to "spoofing."

The practice can trick a user into thinking that he is looking at a log-on, while the user is actually looking at a program simulating a log-on. A privileged user between the unwitting user and the application can record the password and obtain illegal access to the system.

Although corporations are beginning to wake up to security imperatives, systems failures, downtime, fraud and embezzlement all continue to skim millions of dollars from corporate coffers.

Systems failure and downtime drained $50,000 during the last two years from 30% of the respondents, and 19% reported losses of between $50,000 and $1 million.



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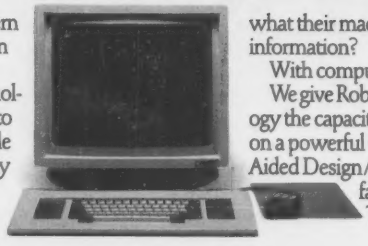

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CALENDAR

IBM user group Guide, Inc. will hold its 1989 symposium Oct. 1-4 in San Francisco. The topic will be "Information Systems Perspectives: Affecting the Global Market." Speakers include Terry R. Lautenbach, IBM's senior vice-president and general manager; Lotus Development Corp. Chief Executive Officer Jim P. Manzi; Jeane J. Kirkpatrick, former U.S. ambassador to the United Nations; Hammer and Co.'s Michael Hammer; Lillian Glass of the USC Speech Communications Laboratory; columnist Jack Anderson; Hans Becherer, president and chief operating officer of Deere & Co.; and Stephen W. Bosworth, president of the US/Japan Foundation. The symposium is designed to provide systems professionals with facts about the roles that information systems continue to play in both long- and short-range corporate strategy.

For more information, contact Guide Headquarters, Suite 600, 111 E. Wacker Dr., Chicago, Ill. 60601.

JULY 16-22

Guide 74. Toronto, July 16-21 — Contact: Guide International, Suite 600, 111 E. Wacker Drive, Chicago, Ill. 60601.

Institute in Computer Science. Santa Clara, Calif., July 17-19 — Contact: Institute in Computer Science, University of California Extension, Santa Cruz, Calif. 95064.

Leveraging the Information Technology Investment Workshop. Newport Beach, Calif., July 17-19 — Contact: The Information Group, P.O. Box Q, Santa Clara, Calif. 95055-3756.

Managing Organizational Change Program. Boston, July 17-19 — Contact: ODR, Building 16, 2900 Chamblee-Tucker Road, Atlanta, Ga. 30341.

International Forum on Micro-Based CAD. Research Triangle Park, N.C., July 19-21 — Contact: Frank Emory, North Carolina State University, Division for Lifelong Education, Box 7401, Raleigh, N.C. 27695-7401.

IS Management Seminar. San Francisco, July 20 — Contact: Legent, 2 Allegheny Center, Pittsburgh, Pa. 15212.

Understanding ISDN Conference. Cambridge, Mass., July 19-21 — Contact: CAP International, 1 Longwater Circle, Norwell, Mass. 02061.

JULY 23-29

Information Center Conference and Expo. Anaheim, Calif., July 23-27 — Contact: Martha Eversley, Conference Registrar, Weingarten Publications, 38 Chauncy St., Boston, Mass. 02111.

Just-In-Time Seminar. Washington, D.C., July 24-26 — Contact: American Production and Inventory Control Society, 500 West Annandale Road, Falls Church, Va. 22046-4274.

Summer Institute in Supercomputing. Ithaca, N.Y., July 24-Aug. 4 — Contact: Donna Smith, Conference Coordinator, Cornell National Supercomputer Facility, Summer Institute, Campus Road and Central Ave., Ithaca, N.Y. 14853-8301.

Sparcintosh: The Imminent Collision Between Powerful Workstations and Lower Cost PCs Conference. San Francisco, July 25-26 — Contact: The Yankee Group, 200 Portland St., Boston, Mass. 02114.

Computer Security Conference. Washington, D.C., July 26-28 — Contact: Digital Consulting, 6 Windsor St., Andover, Mass. 01810.

JULY 30-AUG. 4

Database '89 Program. San Francisco, July 31-Aug. 2 — Contact: Digital Consulting, 6 Windsor St., Andover, Mass., 01810.

Financial Management For Data Processing Annual Conference. Philadelphia, July 31-Aug. 2 — Contact: Financial Management For Data Processing, P.O. Box 27543, San Francisco, Calif. 94127.

Comdex/Asia Pacific '89. Sydney, Australia, Aug. 1-3 — Contact: The Interface Group, 300 First Ave., Needham, Mass. 02194.

Telestrategies Conference: Fiber Metropolitan-Area Networks and Local-Area Networks. Washington, D.C., Aug. 2-3 — Contact: Telestrategies, Suite 100, 1355 Beverly Rd., McLean, Va. 22101.

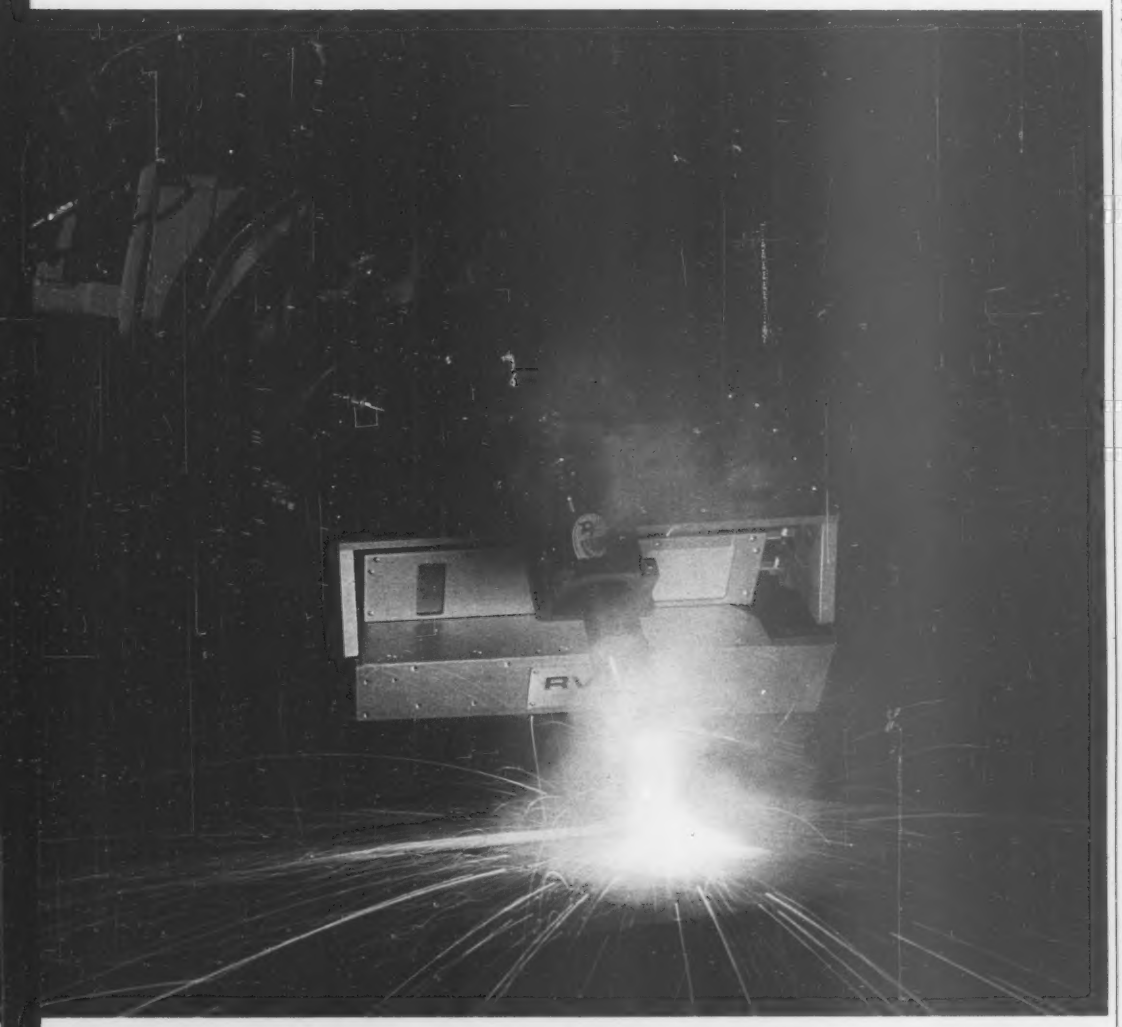
AUG. 6-12

International DB2 Users Group International Conference. Chicago, Aug. 6-9 — Contact: IDUG, Suite 600, 111 E. Wacker Drive, Chicago, Ill. 60601.

Urban and Regional Information Systems Association (URISA) Annual Conference. Boston, Aug. 6-10 — Contact: URISA, 319 C Street S.E., Washington, D.C. 20003.

Evolution of DB2 Seminar. Dallas, Aug. 3 — Contact: Forrest Ford Consultants, 1425 Greenway Dr., Suite 575, Irving, Texas 75038.

Executive Communications and Support. Wellesley, Mass., Aug. 6-9 — Contact: The Institute of Management Sciences, 290 Westminister St., Providence, R.I. 02903.



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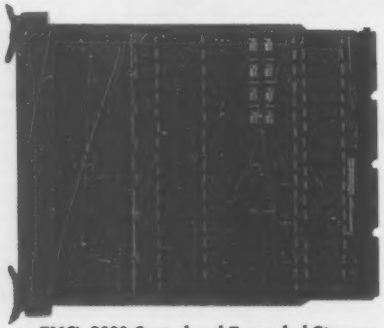

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SOFTWARE FOR THE IBM MIDRANGE

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BY LARRY STEVENS and DEBRA SHEER HAVERSON

KAREN BARBOUR

Jeannette Byrd, data processing manager at Chatham Steel Corp. in Savannah, Ga., is a veteran of the IBM midrange world. In the last 15 years, her company has migrated from the System/3 to the Application System/400, with stops at the System/34, 36 and 38.

Byrd says that each time the company moved up to a new system, it bought some new packages and ported others. As a result, her programs were a patchworked conglomerate of various business-related packages initially written for disparate platforms. A large amount of homegrown programming provided customization and allowed for migration from system to system.

Byrd changed her software strategy last September, when she purchased an AS/400. After running her much-renovated code in System/38 mode on the AS/400, she decided that whereas the old programs ran just fine, the transition to a new machine was a good occasion for getting her software under control.

Chatham Steel will soon be installing a portfolio of software from Andersen Consulting, including its Distribution Control, General Ledger and Accounts Payable and Receivable packages, all of which Andersen has customized to Chatham's requirements. The project of customizing and testing the software, which is designed to run on the AS/400 in native mode, took almost one year.

The functionality of the new software is not all that different from that of the collection Chatham Steel had cobbled together over the years, Byrd says. What is different is the maintainability of the acquisitions.

"We have a lot of consultants coming in here and new people working on our software," she points out. "It was difficult to make changes because we didn't know where many things were in the [old] code."

The order of Byrd's purchase decisions — first the hardware, then, almost as an afterthought, software — is not unusual among IBM midrange users moving to the AS/400. In itself, the applications software currently being offered for the AS/400 is not attracting users to the newer platform. In general, AS/400 packages today are essentially no different than what was available for the System/38 last year, when the AS/400 was introduced.

Few new software types have appeared. For the most part, the programs now on the market for the AS/400 are simple rewrites of existing packages.

That similarity is often an advantage for users who are interested in additional capacity but perfectly satisfied with the software that they already have.

For example, Kilpatrick Life Insurance Co. in Shreveport, La., decided to upgrade to an AS/400 from System/38 Model 4 six months ago. Lawson Associates, Inc., the vendor supplying most of the company's current software, offered AS/400 versions that were virtually indistinguishable from their predecessors. As Bill McCutcheon, senior vice-president and chief financial officer at Kilpatrick Life, puts it, "Basically, all we had to do was download from one machine, upload the files on the other, and we were in business."

Right now, few users who have migrated to the AS/400, or are preparing to do so, are interested in software innovations. Thousands of commercial packages are available for both the System/36 and 38, from manufacturing, distribution and retailing, to office support and financial applications.

For the time being, most users are quite satisfied with their choices. When they move, their primary motivation is additional hardware capacity. To the extent that software figures into their thinking at all, users' main concerns are continuity and positioning for the future. These organizations want a minimum of

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Steady as You Go
Selling development tools into this market may require an extra measure of patience. Page 74.

No Pain, No Gain?
By giving SAA a cold shoulder, midrange software vendors may have frozen their options. Page 75.

Comforts

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disruption now and the security of knowing that they will not be stranded without continuing support.

"I expect most of the new software development work will be on the AS/400 versions of software," Byrd says. "Andersen and all the vendors are still supporting the System/38, but we have no guarantee that that will continue indefinitely."

Al Barsa, president of the Barsa Consulting Group in Port Chester, N.Y., agrees that betting on long-term support from either IBM or developers is not a good idea.

Barsa believes that software vendors will likely follow IBM's lead as it withdraws support for the older machines, particularly the System/36. In fact, he says, he is advising his System/36 clients not to invest in more machine-specific software.

The issue is less pressing for System/38 users because of the architectural similarities between that machine and the AS/400. If they do not run out of capacity before then, System/38 users may choose to bide their time and wait for some of the application innovations that are expected over the few years.

For now, however, software vendors are waiting for both technical developments and a clearer sense of the ultimate demographic potential of this market before they start developing new applications.

"A lot of vendors are looking around for new areas to tackle," says Doreen Simeone, director of information services at ADM, Inc., a Cheshire, Conn., AS/400 consulting firm. "But right now they are unsure where the future is going," she adds.

One of the wild-card factors, Simeone says, is IBM's escalating focus on attracting new customers from outside its traditional midrange community. If the company is successful in wooing converts, a range of new application requirements may open up. But for the time being, such a population shift is mere conjecture, she notes, and there is no telling what kinds of packages might result.

Some changes are expected to materialize with or without a wave of new settlers, however.

New faces

For one thing, some new names and faces will definitely be appearing. Although many of the first AS/400 packages were developed by System/36 and 38 software vendors, Simeone points to a recent influx of mainframe software vendors. A lot of companies that have been working in the IBM 370 environment are starting to see the potential of the new platform, she says.

One area of initial concentration for this group has been application development. Pansophic Systems, Inc. bought into the market with the acquisition of Fusion, a report writer product for System/36 and 38 machines, Simeone says. Information Builders, Inc. is planning to launch a midrange version of Focus when a C language compiler becomes available for the AS/400. Still another vendor, Metafile Information Systems, Inc., has already introduced an AS/400 version of its mainframe application development tool, Metaview, which creates applications that include image management in a cooperative processing environment.

Alan Sprau, president of Metafile, notes some AS/400 features aided the process of adaptation. One was the standard database interface implemented throughout the AS/400 line. Another was Advanced Peer-to-Peer Networking (APPN), which is built into AS/400 machines and which allows personal computers, midrange computers and imaging devices to communicate as equals.

Application development products really became a significant factor in the IBM midrange market only after the System/38 was introduced, according to Simeone. System/36 customers tended to rely almost exclusively on packaged software, she says, adding, "They wanted to be able to put the machine in a corner and run it without having anyone program it."

When the System/38 came along, it penetrated new territory and moved into application areas that were more specialized and more conducive to in-house development. Typically, System/38 sites develop at least some of their own business-specific applications while continuing to purchase the more standard kinds of packages. That mix, Simeone says, is likely to persist with the AS/400.

The Metaview application development language is particularly interesting because it encompasses two elements that are expected to assume great importance for IBM midrange users over the next few years: cooperative processing and image processing.

IBM's Officevision announcements [CW, May 8] gave a clear signal that it sees distributed data and cooperative processing as key trends. Software vendors are expected to follow that lead — although probably at a measured and deliberate pace. The AS/400 is also regarded by many as an ideal repository platform for many kinds of imaging applications. The majority, however, will probably have to wait until the early 1990s, when a read/write optical disk is expected to become an option. Currently, only write-once read-many disks are available for these machines.

Another group of offerings hovering in the middle distance, according to both Barsa and Simeone, is artificial intelligence products. Vendors of existing AI packages operating at both the mainframe and the PC levels see promise in the AS/400, Simeone says, but they are waiting for the market to grow.

The emerging category of executive information systems (EIS) may also find a home in the IBM midrange. IBM, for one, has announced that it will make its product, Executive Decisions, which currently runs in VM, available for OS/400. With that intention, some market watchers speculate, other EIS developers may look seriously at the AS/400 as a destination.

Most consultants and analysts foresee significantly different usage patterns emerging in the IBM midrange as the AS/400 settles into place. In much the same way that System/38 transformed the plug-and-play image of the System/36 — by adding in-house programming for specialized applications to the agenda — the AS/400 is introducing new connectivity possibilities that could very well catapult midrange machines into new orbits of activity.

Barsa, for example, thinks there is a high probability that many organizations will abandon their 370 architecture mainframes for networks of AS/400s.

Two features of the AS/400 that encourage such visions are support for APPN and distributed data management (DDM). APPN support, according to David Passmore, a principal in the Fairfax, Va.-based Network Strategies consulting practice of Ernst & Whinney, is something that exists only on the midrange plane in the IBM world.

In practical terms, Passmore says, that means that AS/400s and System/36s can be tied together into a self-configuring, peer-level network that will permit terminal pass-through. With the added bonus of DDM support, distributing database applications across networks of IBM midrange machines becomes more feasible.

Much less realistic than IBM midrange networks, Passmore notes, is the concept of the AS/400 as a local-area network server. Although SAA has a vehicle for such an arrangement, he says, "there is certainly some question about whether it makes sense to use AS/400 for this purpose as opposed to a PC." In addition to cost, there is no AS/400 support for Ethernet. Besides, it seems that the development tide is already rushing in another direction — toward OS/2 and PCs. That, Passmore points out, "is where a lot of the really interesting client-server applications are going." ●

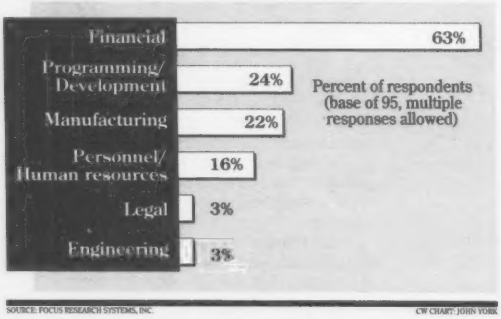
Where to probe

Vendors have never been known for their objectivity, and with the rush to gain share in the Application System/400 marketplace, software vendors for this segment are no exception. In its report, "The AS/400 Revolution," ADM, Inc., a Cheshire, Conn.-based market research and consulting firm, offered users pointers on testing software vendors' claims. Among questions they suggested users ask vendors are the following:

- Is your software "native" to the AS/400?
- If not, what are your plans toward making it native? Will you allow upgrading to the native version, either for free or at a moderate cost?
- What do you mean by native? What modifications were made to the software? (This question pertains to software from the System/36 world that claims to be native. System/38 software is much easier to migrate and run in native mode than System/36 software, which often needs rewriting.)
- Was the software written from scratch?
- If migrated, from which system? Did the package lose any features in the migration process?
- How long was the beta-test site period? How many beta-test sites did you have?
- What support services are available? (This includes documentation and training.)

AS/400 users' choice awards

Financial applications were at the top of the list of users' choices for AS/400 applications



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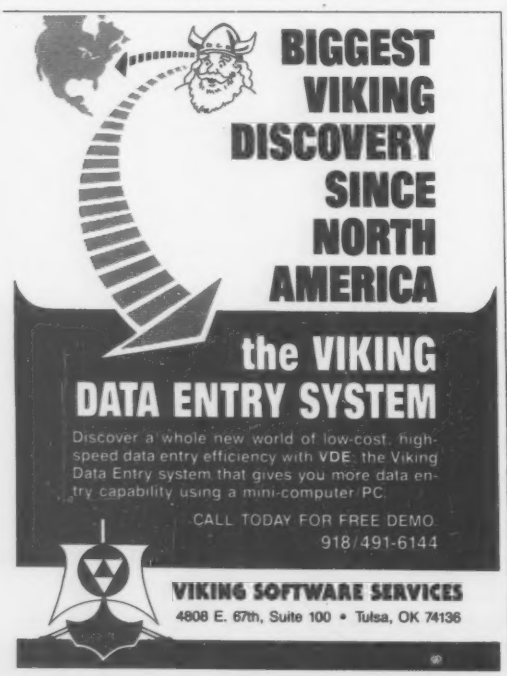

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The right choice.

Turf rocky for development tool growth

BY DAN KIMMEL

Ordinarily, the prospect of more than 30,000 new midrange computers would send suppliers of software development tools running to their bankers to beg for more working capital. And the bankers would gladly open the vaults for such a sure thing.

The IBM Application System/400 boom is different, however, and should produce a more cautious response from both software development tool vendors and their bankers. Anyone contemplating an investment of time or money in computer-aided software engineering (CASE) tools or any tool intended to assist in the software development function should be aware of some important trends in the business of developing application software for the AS/400 and other midrange computers.

The kinds of applications to be developed for the new midrange products will directly influence the types of software development tools needed, as will the number of development organizations and the characteristics of developmental personnel.

First of all, it is a good bet that between one-half and three-quarters of the AS/400s delivered during the product's first five years will not be used for development. The packaged solutions to the business problems that motivated the rush of development during the 1970s and '80s have become so good and so complete that they will entirely justify the user's purchase and installation costs.

Consequently, the number of user organizations actually doing application development work for this class of computer during the 1990s will drop in proportion to the number of total computer installations. It is likely that development personnel and other resources will shift significantly away from the user sites and toward application software package developers.

There should also be a significant shift in the types of applications developed for the AS/400 and other midrange systems during the '90s.

The earliest system-justifying applications were the standard business functions that IBM called BICARSA — billing, inventory control, accounts receivable and sales analysis. These were followed by production control, materials requirements planning, payroll, human resources, general ledger, accounts payable and other general business functions.

Kimmel is a consultant based in Lockport, Ill.

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IT IS A GOOD BET that between one-half and three-quarters of the AS/400s delivered during the product's first five years will not be used for development.

Currently, all of these functional areas and a number of more specialized tasks are covered by reasonably priced, adequately functional and widely applicable midrange software packages.

While there will be some continued market demand for replacement application packages in these bread-and-butter categories, the potential payback for developers is dwindling daily due to competitive forces in these markets.

Tighter market base

Furthermore, despite a broader market of hardware installations than ever before, the new applications to be developed in the '90s will be, by default, more specialized, thus limiting their appeal to a smaller segment of the market. Software vendors will have a smaller potential market base over which to spread their development costs.

Application developers, in other words, are going to be forced to carefully control their development costs.

CASE tools and fourth-generation programming languages can be a considerable aid to controlling costs when they increase the productivity of the development teams. Their effectiveness, however, depends on the ability of the development staff to use them fully.

Making software development tools useful for IBM midrange developers is a special challenge for suppliers. A large number of the analysts and programmers populating the software development ranks of midrange system houses were not trained in computer science.

Initially, there were so many obviously justifiable applications that the industry could not wait for universities and trade schools to train the needed quantity of computer scientists and software engineers. Instead, nontechnicians, such as accountants, were pressed into service to

Continued on page 82

Midrange vendors find SAA fight a costly battle

BY CHUCK BALSLY

There is a time to protest and a time to work, and developers of commercial software for the IBM midrange may find they waited too long to strike a compromise.

While all segments of IBM's customer base have registered complaints about the company's Systems Application Architecture (SAA), the loudest and most persistent opposition has come from the System/36 and 38 software developers.

In 1987, this group wore its sentiments on its chest — literally. The developers, wearing badges with "SAA" crossed out with a red "X," marched through a semiannual conference held by Common, the user group for IBM midrange installations. Their major complaint was that RPG, the language on which most had been trained, was excluded.

Although the developers' objections were valid, IBM had clearly stated that its initial introduction of SAA was far from complete and was intended only as a starting point and a framework for planning.

Furthermore, the protest was not only noted by IBM, but it also elicited a response. Within five months, IBM promised that RPG would be included in a subsequent SAA version and followed up on that promise within another five months.

If IBM thought this action would make converts out of the midrange developers, it was mistaken. By this time, the Application System/400 had been introduced, which included vast software facilities such as external file definition and an integral relational database. Midrange developers were disappointed that the SAA versions of the AS/400's programming languages had more limited capabilities than the non-SAA versions and did not support these advanced features as directly as RPG would have.

Restricted development

One by one, commercial midrange software producers declared their opposition by restricting their developments to the more limited subset of RPG specified by SAA. There is logic to this argument. Naturally, no one likes giving up what is familiar. And developers contend that although they can do everything with SAA that they had been able to do with RPG, they cannot do it as cleanly and efficiently.

However, this argument fails to recognize that any standard programming methodology limits initial coding efficiency by restricting the number of coding options available to the programmer. But the uniformity of code and the design discipline imposed by a methodology such as SAA provides for easy program maintenance and allows the code to be easily understood by programming personnel.

What is illogical, however, is that software developers chose to ignore both the potential benefits of SAA and the opportunities that IBM offered for an active role in shaping SAA more to their liking.

A large number of midrange software developers were invited to attend IBM's SAA Today seminars, designed to jumpstart SAA development and identify potential vendors of pilot projects. Only a few attended, however, and those that did remained mostly noncommittal.

As a result, when it came time

Continued on next page

Balsly is the publisher of "SAA Age" and "Update" newsletters, products of Systems Educational Associates, Inc. in Irving, Texas.

SAA: Work in progress

User interface and program services elements will be part of Officevision/400, which is due sometime in 1990

	SAA elements	Availability: 1988	Future
Communications	APPN/LEN, DCA, DIA, IPDS	✓	
	APPC/LU6.2, SDLC, SNADS	✓	
	Network management	✓	
	Token-Ring LAN X.25	✓	
	Distributed data management	✓	
User interface	Dialog, presentation interfaces		•
Database	SQL/400	✓	
Languages	Cobol/400, RPG/400	✓	
	C language, Fortran 77		•
	CSP application enabling, procedures language		•
Program services	Communications, query interfaces		•

SOURCE: COMPUTER TECHNOLOGY RESEARCH CORP. CW CHART: DOREEN DABLE

Battle

FROM PREVIOUS PAGE

to tap participants in IBM's first major SAA program offering, Officevision, the Software Vendor Group of IBM's Application Systems Division looked elsewhere. Officevision, conceived as a desktop environment supporting the integration of third-party applications, turned out to be made up almost entirely of products from mainframe software developers, which were willing and active attendees at SAA Today.

With a head start on SAA, several mainframe software vendors are now also evaluating entering the midrange markets. Because the AS/400 is designed to overlap the low and medium ends of the mainframe market and because the software's SAA-based code will be compatible with the AS/400 in the near future, it is virtually certain that a significant number of these vendors will decide to move into midrange territory.

Expanding vision

Midrange developers are just now realizing the opportunity they have created for the mainframe vendors. Slowly, these developers' attitudes toward SAA are changing, for two reasons: the threat of the mainframe software vendors, which can easily move their software to the midrange through their investment in SAA technology; and pressure from large *Fortune* 500-type customers for long-term compatibility with SAA in applications that run on the midrange machines they currently use for distributed processing.

In some cases, however, the change of heart may have come too late. Since they chose to ignore SAA for so long and declined to develop pilot applications, midrange software developers now face the superior financial resources and marketing talents of mainframe software houses.

Not all of the midrange developers will be capable of standing up to the competition, and those that are not may find themselves confined to the smaller company market now serviced by the System/36 and, to a limited extent, the System/38. •

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Seattle

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Personnel/human resources software

COMPANY	PRODUCT	HARDWARE PLATFORM	STANDALONE OR INTEGRATED	INTEGRATED WITH WHAT OTHER COMPONENTS	MAJOR FUNCTIONS	INTERFACES WITH WHAT PROPRIETARY SOFTWARE	INTERFACES WITH WHAT OTHER SOFTWARE	SUPPORTS COMPANIES WITH HOW MANY EMPLOYEES	SUPPORTS SEVERAL DIVISIONS	PRODUCES HOW MANY STANDARD REPORTS	CREATES AD HOC REPORTS	WORD PROCESSING	MENU-DRIVEN	BUILT-IN DBMS	ANALYTICAL CAPABILITIES	SUPPORTS MATHEMATICAL FUNCTIONS	SECURITY FEATURES	PRICE
Advanced Institutional Management Software (516) 496-7700	NHIS, MHIS	System/36, AS/400	Both	Financial, patient care, pharmacy	Nursing home info systems, mental health/ mental retardation/substance abuse/community mental health, payroll	All	Lotus 1-2-3 and Symphony, IBM Query	50+	Yes	Unlimited (report writer)	Yes	No	Yes	Yes	Analyzes costs, time and attendance, benefits	Yes	Multilevel	Starts at $25,000
American Business Systems, Inc. (ABS) (508) 250-9600	ABS Payroll System	System/36	Both	ABS General Ledger System	Payroll processing; federal, state and local tax withholding; W-2 processing; attendance records	ABS General Ledger System, ABS Job Cost System, ABS Bridge/Report writer	Lotus 1-2-3 and Symphony, Dbase, Informix	50-500	Yes	15	Yes	No	Yes	No	Analyzes attendance, earnings, overtime, deductions	NP	Password	Set by ABS reseller
Application Systems International, Inc. (407) 875-1112	ASI Payroll	System/36, AS/400	Both	Cafeteria plan, personnel package	Checks, tax and G/L distribution reporting, maintain payroll history	G/L, A/P, A/R, J/C	Optional	5-1,000+	Yes	10 to 30	Yes	No	Yes	Yes	NP	Yes	System, application, report security	$2,000-$6,000
Applications Specialists, Inc. (214) 597-5414	Computer Synergetics Payroll/ Personnel	System/36, AS/400	Both	A/P, A/R, G/L, fixed assets	Payroll transactions; 401K, user-defined and declining balance deductions	Wholesale distribution and retail POS inventory management	None	10-150	Yes	35+	Yes	No	Yes	No	Analyzes QTD and YTD earnings, deductions, records and personnel reports	No	None	$1,750-$3,250
Automated Accounting Systems, Inc. (800) 237-0252	Section 89 Compliance	System/36, AS/400	Standalone	NA	Data collections, compliance testing, highly compensated test, discriminatory excess calculation	Payroll, Personnel Calendar	IBM Mapics and other payroll systems	25+	Yes	10	No	No	Yes	No	Benefits analysis	Yes	Multilevel security	$7,500
	Personnel Calendar	System/36, AS/400	Standalone	NA	Attendance, job/salary history, employee evaluations, on-line inquiry	The Time Cloc, Payroll	IBM Mapics and other payroll systems	25+	Yes	30	Yes	No	Yes	No	Analyzes attendance, work force, absences by the day	Yes	Multilevel security	$1,250-$3,000
	Payroll	System/36, AS/400	Standalone	NA	Section 125/401K, direct deposit, magnetic media W-2 reporting, 18 deductions	The Time Cloc, Personnel Calendar	None	25+	Yes	25+	No	No	Yes	No	Analyzes labor costs	Yes	Multilevel security	$2,500
	The Time Cloc	System/36, AS/400	Standalone	NA	Clock in/out by workstation/ badge reader, automatic overtime calculation, exception reporting	Payroll, Personnel Calendar	IBM Mapics and other payroll systems	50+	Yes	15	No	No	Yes	No	Analyzes overtime, hours worked vs. hours scheduled	Yes	Multilevel security	$2,000
Bancroft Computer Systems, Inc. (318) 397-1377	Versatile Pay Management System	System/36	Standalone	NA	Multicompany, labor distribution, user-defined pay and deductions, employer expenses	Financial Reporting System	NP	500	Yes	30	NP	No	Yes	No	NP	No	None	$4,000
Business Computer Design (312) 986-0800	Modular accounting, payroll	System/36, AS/400	Both	A/P, A/R, G/L, software documentation	Master file maintenance, daily and weekly payroll, month-end closing with interface to G/L, employee reports	G/L	None	40-500	Yes	20	No	No	Yes	No	Analyzes amount of earnings per employee, reports by department, new/updated employees	No	System security	$1,950-$2,450
Business Software, Inc. (404) 449-3200	BSI-TAX	System/38, AS/400	Standalone	Payroll	U.S. payroll and deferred income, benefit plans, Canadian taxing	None	Payroll and human resources systems	100-500,000	Yes	10	No	No	No	No	NP	Yes	None	NP

J/C = job costing; O/E = order entry; I/C = inventory control; Cobra = Comprehensive Omnibus Budget Reconciliation Act; I/C = inventory control; S/A = sales analysis; P/O = purchase order

The companies included in this chart responded to a recent telephone survey conducted by *Computerworld*. When a vendor is unable to provide specific information about its product, the abbreviation NP (not provided) is used. When a question does not apply to a vendor's product, the abbreviation NA (not applicable) is used. Further product information is available from the vendors.

COMPANY	PRODUCT	HARDWARE PLATFORM	STANDALONE OR INTEGRATED	INTEGRATED WITH WHAT OTHER COMPONENTS	MAJOR FUNCTIONS	INTERFACES WITH WHAT PROPRIETARY SOFTWARE	INTERFACES WITH WHAT OTHER SOFTWARE	SUPPORTS COMPANIES WITH HOW MANY EMPLOYEES	SUPPORTS SEVERAL DIVISIONS	PRODUCES HOW MANY STANDARD REPORTS	CREATES AD HOC REPORTS	WORD PROCESSING	MENU-DRIVEN	BUILT-IN DBMS	ANALYTICAL CAPABILITIES	SUPPORTS MATHEMATICAL FUNCTIONS	SECURITY FEATURES	PRICE
Computations/Dyer Wells (404) 952-7854	Response Plus Claims Payment System	AS/400	Both	Group administration, G/L, word processing	Health claims enrollment and processing, plan definition, statistical reporting	Group and flexible benefits administration components of Response Plus	None	500+	Yes	110	Yes	Yes	Yes	Yes	NP	Yes	User-controlled ID, password	NP
Computer Associates International, Inc. (800) 841-3734	CA-Payroll/ Personnel	System/36, 38, AS/400	Both	G/L, human resources	Employee database, real-time file maintenance, labor distribution, direct deposit	CA-General Ledger, CA-Human Resources	None	Unlimited	Yes	35+	Yes	No	Yes	Yes	Full analytical capabilities through report writer	NP	None	$11,000-$29,000
Computer Related Services, Inc. (804) 499-8911	Payroll/Labor	System/36, AS/400	Standalone	NA	G/L transactions, recurring time cards, labor history, magnetic filing of W-2s	G/L, J/C	None	25-500	Yes	15	No	No	Yes	No	Analyzes labor history, distribution, hours worked, tax deductions, employee leave, YTD and QTD payroll	Yes	Operating system security only	$2,000-$4,000
Construction Systems Software, Inc. (800) 531-1035	CAPS	AS/400	Integrated	G/L required, J/C and equipment optional	State and local taxes, union dues, deductions, benefits, cost accounting, certified labor report	J/C, G/L	None	200	Yes	20	No	No	Yes	No	Full analytical capabilities	No	Application level	$500-$8,500
Crosstech Systems, Inc. (516) 932-8020	Pro-Fit Series	System/36, AS/400	Both	G/L, job estimating and tracking, A/P, A/R, P/R	16 deductions, printing W-2s, 941 report, unemployment information	J/C, G/L, A/P, A/R, order entry, inventory, purchase orders	None	20	Yes	9	Yes	No	Yes	Yes	NP	Yes	Password	$2,295-$3,995
Cyborg Systems, Inc. (312) 454-1865	The Solution Series	System/38, AS/400	Both	Human resources management, payroll administration, time and attendance recording	Human resources management, payroll administration, time and attendance recording	The Payroll Solution, The Human Resource Management Solution, The Time and Attendance Solution	Any G/L system	250+	Yes	300	Yes	No	Yes	Yes	Report writer, query facility, phonetic search, relational editing	Yes	Multilevel security feature	NP
Datamatics Management Services, Inc. (201) 738-9600	TC-1 Labor Management System	AS/400	Integrated	Payroll, cost accounting, G/L, manpower scheduling	Attendance record-keeping, payroll hours preparation, J/C tracking and analysis, management information	Manpower scheduling, J/C reporting systems	Several payroll packages	100+	Yes	15+	Yes	No	Yes	Yes	Retrieves complete staff information	Yes	Multiple and double password, table-driven	$2,995-$20,000
Data Processing Services,Inc. (317) 842-8300	DPS/36, DPS/9000 Distribution Processing Systems	System/36, AS/400	Both	G/L, A/P, A/R, fixed assets, inventory management, inventory control, order entry	Inventory management, suggested purchase order, integrated inquiry, order entry	All modules of DPS/9000, DPS/36	Most IBM business application software (query, office, business graphics)	15+	Yes	40+	Yes	No	Yes	Yes	Limited	Yes	Full menu defined by user	$12,000-$300,000
Dexel Systems Corp. (703) 448-9400	Human Resource Management System	System/36, AS/400	Standalone	NA	EEO reporting, Cobra, attendance records, applicant tracking	Payroll	NP	25+	Yes	80	Yes	No	Yes	No	Full analytical capabilities	Yes	By salary, division	$3,000-$5,000
Digital Linguistix (201) 882-3630	IBS Payroll	AS/400	Both	10 other IBS modules	Deductions, taxes, weekly and hourly wages, auto check, reports	A/P, G/L, financial statements	Any G/L system	Un limited	Yes	22+	Yes	No	Yes	Yes	Full analytical capabilities	Yes	Password	$8,000-$15,000
J. D. Edwards & Co. (303) 773-3732	J. D. Edwards Payroll & Personnel System	System/38, AS/400	Both	G/L, address book, fixed assets, J/C accounting,	Direct deposit, union and non-union payroll, dues, deductions, benefits, multitax authority, unlimited deductions and benefits	G/L, address book, fixed assets, J/C accounting	Vertex Systems Payroll Tax	200-15,000	Yes	120	Yes	No	Yes	Yes	Calculates non-standard payroll deductions, distributes costs for personnel with responsibility for more than one department	Yes	By user ID, menu, function	$10,500-$61,250
Executive Technology Data Systems (800) 258-3837	Payroll Checkwriting System	System/36, AS/400	Standalone	NA	Multistate, multipay rates for employees with rate override, meal/tip/rent allowance, deferred compensation	Magnetic media reporting, small business accounting and financial reporting/management accounting	None	10-1,000	Yes	20	NP	No	Yes	NP	Provides dictionaries for use with query	Yes	Password	$2,000-$3,500

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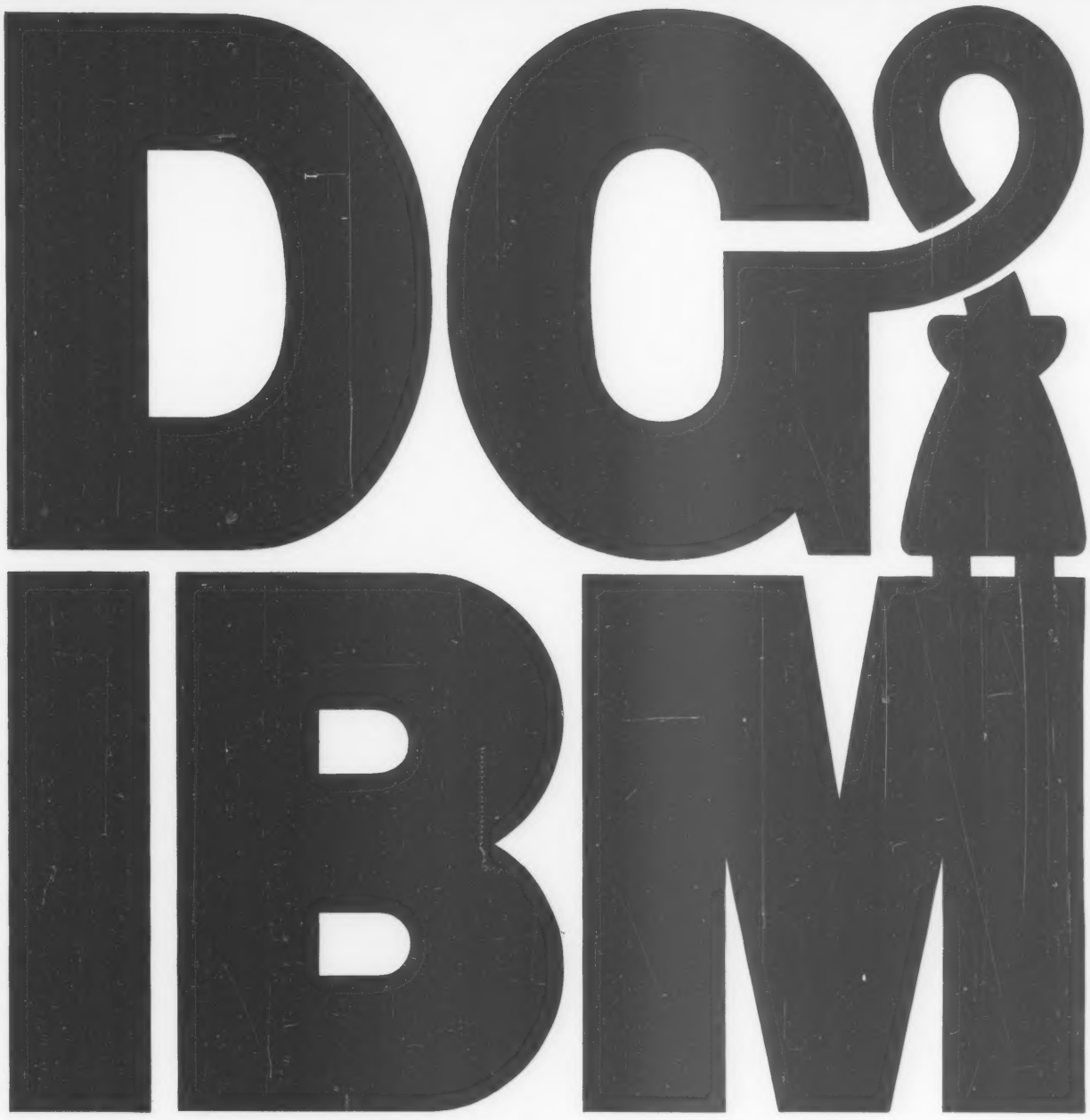
COMPANY	PRODUCT	HARDWARE PLATFORM	STANDALONE OR INTEGRATED	INTEGRATED WITH WHAT OTHER COMPONENTS	MAJOR FUNCTIONS	INTERFACES WITH WHAT PROPRIETARY SOFTWARE	INTERFACES WITH WHAT OTHER SOFTWARE	SUPPORTS COMPANIES WITH HOW MANY EMPLOYEES	SUPPORTS SEVERAL DIVISIONS	PRODUCES HOW MANY STANDARD REPORTS	CREATES AD HOC REPORTS	WORD PROCESSING	MENU-DRIVEN	BUILT-IN DBMS	ANALYTICAL CAPABILITIES	SUPPORTS MATHEMATICAL FUNCTIONS	SECURITY FEATURES	PRICE
Mervin G. Faulkner Associates Ltd. (705) 835-3528	Payroll	System/36, AS/400	Both	G/L	Calculates gross at time sheet entry, up to 99 deductions and misc. payments, user-maintainable tax tables	G/L	None	10+	Yes	15	Yes	No	Yes	No	Absentee inquiry, what-if, shows effect of rate changes on total payroll	Yes	Proprietary	$7,500
Financial Software, Inc. (800) 523-1355	Payroll checkwriting system	System/ 36, AS/400	Stand-alone	NA	Multijurisdiction, user-defined tax tables, multiple cost center and magnetic media reporting, direct deposit	G/L, financial reporting system	Any G/L system	10+	Yes	85+	No	No	Yes	No	Accrues multiple labor distribution, tax, vacation/ sick time	Yes	IBM resource security	$4,500-$6,500
Fourgen Software (206) 776-5088	Fourgen accounting, payroll module	AS/400	Both	Live link spreadsheets	Browse listed documents, find query by forms, zoom detailed documents, context-sensitive help	G/L, A/P, A/R, O/E, I/C	Uniplex, Informix	5-1,000	Yes	7	Yes	No	Yes	Yes	Full analytical capabilities	Yes	Any level of security	$4,000
Gamma Software, Inc. (503) 770-5587	Payroll System	System/36, AS/400	Both	Bank reconciliation, G/L	Unlimited rates of pay per employee, deductions, labor distribution; full manual check processing	G/L, bank reconciliation	None	25+	Yes	30-50	Yes	No	Yes	No	Analyzes labor distribution	No	Password, application level	NP
Harris Data Service (414) 784-9099	Harris Data Human Resource System	System/36, AS/400	Both	Cobra, payroll, human resources	NP	Accounting	NP	10-250	Yes	User defined	Yes	No	Yes	NP	Generates payroll records, taxes, history of earnings, hours, deductions	Yes	At all levels	$3,000-$5,000
J. Hunt & Associates, Inc. (612) 646-2254	JHA Software	System/36, AS/400	Both	G/L, A/P, A/R, J/C	Pretax deductions, extensive inquiries, multistate reporting	G/L, J/C	NP	50-2,500	Yes	50	No	No	Yes	AS/ 400 only	NP	Yes	None	$3,000-$4,000
IBM Contact local sales office	Mapics payroll module	AS/400	Both	G/L, production control and costing, production monitoring and control	Gross/net pay deductions/ taxes, integrated 401K/ cafeteria plan support, alpha searching capability	W-2 magnetic media reporting	American Viking payroll inquiry and history, Daly and Wolcott payroll history	100-500	Yes	30-40	No	No	Yes	Yes	Analyzes vacation/ holiday/sick pay, costs by work center within dept. and by operation within orders	Yes	Multiple levels	$4,670-$11,700
Imrex Computer Systems, Inc. (516) 466-5210	Imrex Payroll System	System/38, AS/400	Both	G/L, labor management	Employee maintenance, time card entry, check processing, deductions	G/L, labor management	Not included in base system, but easily done	100+	Yes	15	No	No	Yes	Yes	Analyzes employee statistics	Yes	Menu security, password	NP
Info Systems of N.C., Inc. (704) 535-7180	Financial Applications Payroll	System/36, AS/400	Both	G/L	Direct deposit, cafeteria plan, auto create salaried employee, 401K, fringe benefits, on-line tax tables	G/L	None	500+	Yes	40	NP	No	Yes	No	NP	Yes	By file	$2,500+
Infotronx, Inc. (800) 344-0475	Labor Resource Management System	AS/400	Both	Time management, time and attendance, labor budgeting, sales forecasting, staff scheduling	Tracks employee time, attendance; integrated to a labor budget; forecasts sales; provides labor scheduling	None	Payroll systems, MSA, ADP	5,000+	Yes	40+	Yes	No	Yes	Yes	Sales forecaster uses a model that provides a history file for three years, allows what-if analytical questions	Yes	Password	$5,600
Kim Computers, Inc. (614) 766-4900	ManTrak	System/36, AS/400	Both	Accounting, labor billing, J/C	Payroll, labor costing, personnel, Cobra	NP	ADP	300+	Yes	200+	No	No	Yes	No	Analyzes labor, budget, standards	Yes	By company, division, employee	$30,000-$80,000
Lawson Associates (612) 379-0258	Pinstripe Payroll	System/38, AS/400	Both	Pinstripe Personnel and Benefits	Check calculations, auto deposits, labor distributions, automatic interface to time collection devices	Pinstripe Personnel, Benefits, Time Accrual, Tip Allocation, General Ledger	NP	200-10,000	Yes	50	Yes	No	Yes	No	Calculates tax, tracks garnishment and limits	Yes	By screen, program, function code, company and time of day	NP



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Lawson Associates (612) 379-0258	Pinstripe Benefits	System/38, AS/400	Integrated	Pinstripe Payroll, Personnel, General Ledger	Flexible benefits administration, cafeteria plan and section 125 capabilities, simulation	Pinstripe Payroll, Personnel, General Ledger, Time Accrual	NP	200-10,000	Yes	60	Yes	No	Yes	No	Calculates premiums and flexible dollars, creates payroll deductions, simulation forecasting programs, eligibility by date	Yes	By screen, program, function code, company and time of day	NP
	Pinstripe Personnel	System/38, AS/400	Both	Pinstripe Payroll and Benefits	User-defined codes, report writer, user-defined personnel actions, EEO processing	Pintstripe Payroll, Benefits	NP	200-10,000	Yes	70	Yes	No	Yes	No	Writes reports, changes mass pay, processes EEO	NP	Same as above	NP
Linton Shafer Computer Services, Inc. (800) 638-2220	Payroll Checkwriting System	System/36, AS/400	Both	Financial reporting, G/L, accounts payable, magnetic media	Multicompany, tip reporting, multirate, multistate	Financial reporting, G/L, accounts payable, mag media	None	10-150	Yes	20	Yes	No	Yes	No	Calculates tax, deductions, cafeteria plan	Yes	NP	NP
Medco Systems, Inc. (609) 596-1028	MSI Payroll	System/36, AS/400	Standalone	NA	Time card breakdown, auto expense, distribution by percent, check writing, employee detail history	Property management	Para Research, IBM DMAS	NP	Yes	8	No	No	Yes	No	Extracts weekly detail history	Yes	None	$5,000
New Generation Software, Inc. (916) 920-2200	Concert Series Payroll	System/38, AS/400	Both	G/L, A/P, A/R, fixed assets	Multicompany, multistate payroll; user-defined earnings, contributions and deductions; multiple cost center distributions	G/L	CTI S/38 and AS/400 property management software	100+	Yes	50	Yes	No	Yes	No	Analyzes salary costs, benefits, cost distributions, salary-to-benefit ratios, projected costs	Yes	User-defined lockout, view, update; extensive control over salary information, menu-customization	$9,000-$39,000
Nexus Computer Systems, Inc. (803) 292-7030	Nexpay	System/36	Standalone	NA	Multicompany payroll	G/L	None	999	Yes	NP	No	No	Yes	No	None	Yes	None	$850
The Omegas Group, Inc. (502) 423-8881	Omegas Payroll	System/36, 38, AS/400	Both	A/P, G/L, Markman	Supports multicompany, multidivision, multistate	G/L	None	5-500	Yes	NP	Yes	Yes	Yes	Yes	Analyzes full history of pay, deductions for each employee	Yes	Access and process	$3,000-$8,000
Panaphic Systems, Inc. (312) 505-6000	PM/38	System/38, AS/400	Integrated	Manufacturing, distribution and financial	State, federal, city, other tax; direct deposit; complete government management reporting	G/L, shop floor	None	NP	Yes	25	Yes	No	Yes	Yes	NP	Yes	NP	NP
Para Research, Inc. (508) 283-3438	Payroll	System/36, AS/400	Standalone	NA	Labor distribution reporting, tips processing, magnetic media direct deposit	G/L	None	10-1,000	Yes	12	No	No	Yes	No	Labor distribution by company, division, employee, department and/or G/L number	No	None	$3,000-$9,000
Personnel Data Systems, Inc. (215) 828-4294	The Human Resource Manager	System/38, AS/400	Both	Payroll manager, personnel manager, benefits manager, report writer	On-line real-time update (no shadow files), complete benefits administration, comprehensive payroll processing	NA	Any G/L system	250+	Yes	300+	Yes	Yes	Yes	Yes	Projects retirement, manual check calculation, modelling and forecasting	Yes	NP	$25,000-$65,000
Professional Software Services (716) 631-3951	PSSC Payroll	System/36, AS/400	Both	G/L, A/P, A/R, personnel services billing, retrieval, scheduling	Multistate/cross-state processing, G/L distribution, nontaxable pay types, deductions	G/L, A/P, A/R, personnel services billing, retrieval, scheduling	Tailored by client	50+	Yes	70	Yes	Yes	Yes	Yes	Standard and user-definable reports	Yes	Menu option, special function, individual employee and company	$2,000-$3,000

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WYSE

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Sharpe Systems (912) 435-1766	Realworld 4.0A Payroll	System/36	Both	A/P, A/R, G/L, O/E, I/C, S/A, all Realworld 4.0A	Multicity, multistate payroll calculations; variety of pay frequencies; user-defined special deductions and earnings	Realworld 4.0A General Ledger	None	Unlimited	Yes	28	No	No	Yes	No	None	Yes	Password	$895-$1,495
Software Plus, Inc. (800) 343-0844	Human Resources/SP; Payroll/SP	System/38, AS/400	Both	Human resources, payroll	Flexible and nonflex benefits administration, complete government compliance	NP	Any native G/L system	100-50,000	Yes	Unlimited (report writer)	Yes	Yes	Yes	Yes	Discrimination testing, tax reporting, benefit costing, position control	Yes	By salary	NP
Software 2000, Inc. (508) 778-2000	Personnel 2000	System/38, AS/400	Both	Payroll 2000	Applicant tracking, salary administration, benefits, safety and health, Cobra	Payroll 2000, Flexible Benefits 2000, Industrial Health 2000, Financial Management 2000	None	500+	Yes	70+	Yes	No	Yes	Yes	Full analytical capabilities through report writer	Yes	By department, security group code	NP
	Flexible Benefits 2000	System/38, AS/400	Requires Personnel 2000	Personnel 2000	Election form and confirmation statement, spending account processing, supports all major benefits types, independent processing by year	Personnel 2000, Payroll 2000	None	500+	Yes	18	Yes	No	Yes	Yes	Same as above	Yes	Same as above	NP
	Payroll 2000	System/38, AS/400	Both	Personnel 2000	North American tax support, automatic pay with exceptions, direct deposits, 401K	Personnel 2000, Flexible Benefits 2000, Industrial Health 2000, Financial Management 2000	None	500+	Yes	75+	Yes	No	Yes	Yes	Same as above	Yes	Same as above	NP
	Human Resources 2000	System/38, AS/400	Integrated	NP	Applicant tracking, salary administration, North American tax support, direct deposits	Flexible Benefits 2000, Industrial Health 2000, Financial Management 2000	None	500+	Yes	100+	Yes	No	Yes	Yes	Same as above	Yes	Same as above	NP
Software Review Corporation (717) 846-0247	SRCBS Payroll	System/36, 38, AS/400	Both	G/L, product shop time cards	Multirates; override deductions; hourly, salary, commission, bonus, multipay periods	G/L, time cards	NP	5-200	Yes	20	Yes	No	Yes	No	NP	Yes	Systems security	NP
System Software Associates, Inc. (312) 641-2900	BPCS Payroll	System/36, 38, AS/400	Both	Business planning/control, manufacturing, distribution and financials	Auto time cards, 401K capabilities, quarterly and year-end tax processing, manual checks	G/L	NA	20-2,000	Yes	40+	Yes	No	Yes	Yes	Analyzes time, wage and tax	Yes	By function, program, employee	NP
Syngen, Inc. (800) 368-8149	The Syngen Human Resource Manager	System/38, AS/400	Both	The Syngen financial manager	Payroll calculation, reporting; personnel tracking; government reporting	G/L, A/P, A/R	Kronos Time and Attendance, Global General Ledger	500-7,000+	Yes	NP	Yes	No	Yes	NP	NP	Yes	999 levels at application, option, record level, read/write/ validate by field	NP
Universal Data Research, Inc. (716) 631-3011	Standard Payroll	System/36, 38	Both	G/L, O/E, A/P, A/R, P/O, inventory	Writes checks with withholdings, handles hourly and salaried payroll, multistate and multilocality withholdings	G/L, O/E, A/P, A/R, P/O, inventory	None	10-200	Yes	12	Yes	No	Yes	Yes	Password, permission, J/C, full analytical capabilities	Yes	Password	$595
Triangle Consulting Corp. (516) 364-1677	Payroll	System/36	Both	A/P, A/R, G/L output	Weekly and daily payroll, quarterly reports, electronic W-2s, union labor reports	A/P, A/R	G/L	15-3,000	Yes	25+	No	No	Yes	Yes	Departmental costs of a given division, total hours by category, total lost hours	Yes	Password, menu	$5,000-$10,000
Ziegler & Co. (800) 228-7588	Ziegler Payroll System	System/36	Both	J/C	Multiple rates and departments supported, multiple pay periods, vacation and sick pay accounting, employee tip accounting	G/L	NP	50 plus	Yes	40	No	No	Yes	No	NP	Yes	User-determined based on menu options	$2,500

Growth

FROM PAGE 74

write application code without any real preparation.

Since then, these individuals have been too busy churning out programs to adequately familiarize themselves with the latest software developments and information engineering principles.

Consequently, any CASE tool that relies on the developer's knowledge of application development methodologies is going to take a long time to gain acceptance among midrange developers.

Familiarity first

Similarly, artificial intelligence and expert systems will not be widely used in application systems until developers become familiar with the underlying concepts.

How long will this education process take? While now required to be familiar with such methodologies, the current crop of computer science graduates has not been attracted to the IBM midrange application software development job market until recently, and few have actually entered it.

Thus, CASE providers must either face a long wait while the marketplace prepares for their products or they must provide extensive training as part of their packages.

To be immediately successful in the midrange marketplace, a development tool would need the ability to be used intuitively by the programmer who has no experience with "modern methodologies" and only limited contact with mice, icons, database managers and presentation managers.

Embody, not enforce

The tool must explain "objects" as it goes along. In short, it must embody the methodology rather than implement or enforce it.

The current batch of software development tools for the midrange market consists of three basic types: system design tools, program generators and nonprocedural fourth-generation languages.

None of these categories promises to be the panacea that midrange software developers are looking for. But it might not be long before tools such as a vertically integrated CASE tool that encompasses the entire development life cycle are developed. Only then can we hope to tap the huge potential that the AS/400 and its object-oriented and capability-based architecture provide. ●

Is your ESS meeting the need?

If not, lack of clarity from your executive sponsor could be the problem

BY GARY K. GULDEN and DOUGLAS E. EWERS

Lately, there has been an outbreak of publicity on executive support systems (ESS). The slick vision that has been conjured up is one of a highly customized computer system that empowers a top executive to view crucial information unfiltered by management layers, to communicate and coordinate in lightning speed with anyone in the organization, to analyze business scenarios as never before and, like a master puppeteer, to control and shape important decisions made in the far reaches of the corporation.

While this may sound like hype, there is actually some substance to these scenarios. ESSs delivered by information systems have proved crucial to executives making major changes in business direction (such as shifting from a product to a market focus), organizational structure (especially flattening the organization) and eliminating staff functions and organizational communications patterns (as in moving to global product sourcing).

However, the majority of ESS efforts we encounter in the field today are on a course toward disappointment — destined to fall short of their potential impact. Why? Most often, it is because the ESS does not meet the need it was requested to fill.

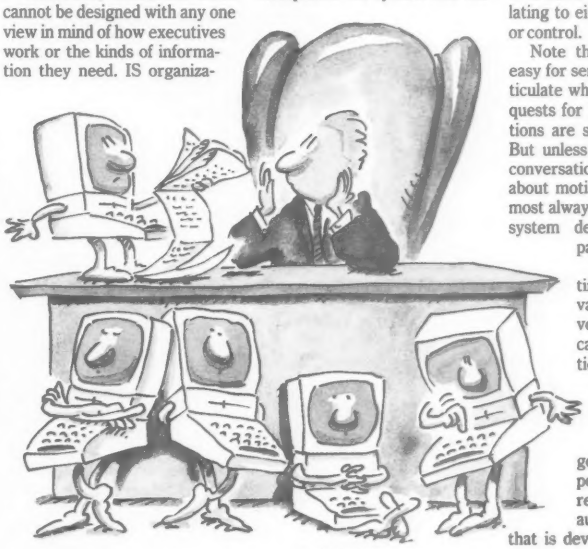
Gulden is senior vice-president and Ewers is principal of Index Group, Inc., a Cambridge, Mass.-based management consulting group that specializes in information technology.

Obstacles to effective ESSs

While the benefits of executive support systems may be obvious, they tend to hide the difficulties inherent in building them. The most powerful ESSs in use today are not generic information and office automation utilities; rather, they are highly customized solutions for executives or executive teams with specific business needs and desired effects on their minds.

Therefore, successful ESSs cannot be designed with any one view in mind of how executives work or the kinds of information they need. IS organizations that follow this assumption and rely solely on the commercially available software packages labeled "executive support" or "executive information systems" will fall short. These products may be a strong starting point or platform for building a custom ESS, but for most executives, they are incomplete on their own.

There are two major reasons why most ESSs deliver less than they promise — or fail to deliver at all. First is the lack of clarity on the part of the sponsoring executive as to the purpose of the ESS. Second is the failure of IS to incorporate the system into the management processes of the organization.



CHRIS DEMAREST

Disappointments arise most often because the executive sponsor's fundamental purpose for the ESS is vague or left up to the IS staff to determine. Keep in mind that there is a range of basic executive motivations for implementing an ESS:

- To gain computer literacy.
- To "send a signal" to subordinates.
- To boost work efficiency.
- To improve insights.
- To facilitate business change, either through strategic redirection or reorganization.
- To solve specific problems relating to either decision making or control.

Note that it is surprisingly easy for senior executives to articulate what is behind their requests for ESSs once these options are spelled out as above. But unless IS holds an explicit conversation with executives about motivations, they will almost always remain fuzzy to the system designers (see story page 89).

Making clear distinctions among the various motivations is very important because different motivations generally call for substantially different design and implementation approaches. A general-purpose reporting, information retrieval and office automation system that is developed with minimal

• Tips for proper implementation

• Who's a good user and who's not?

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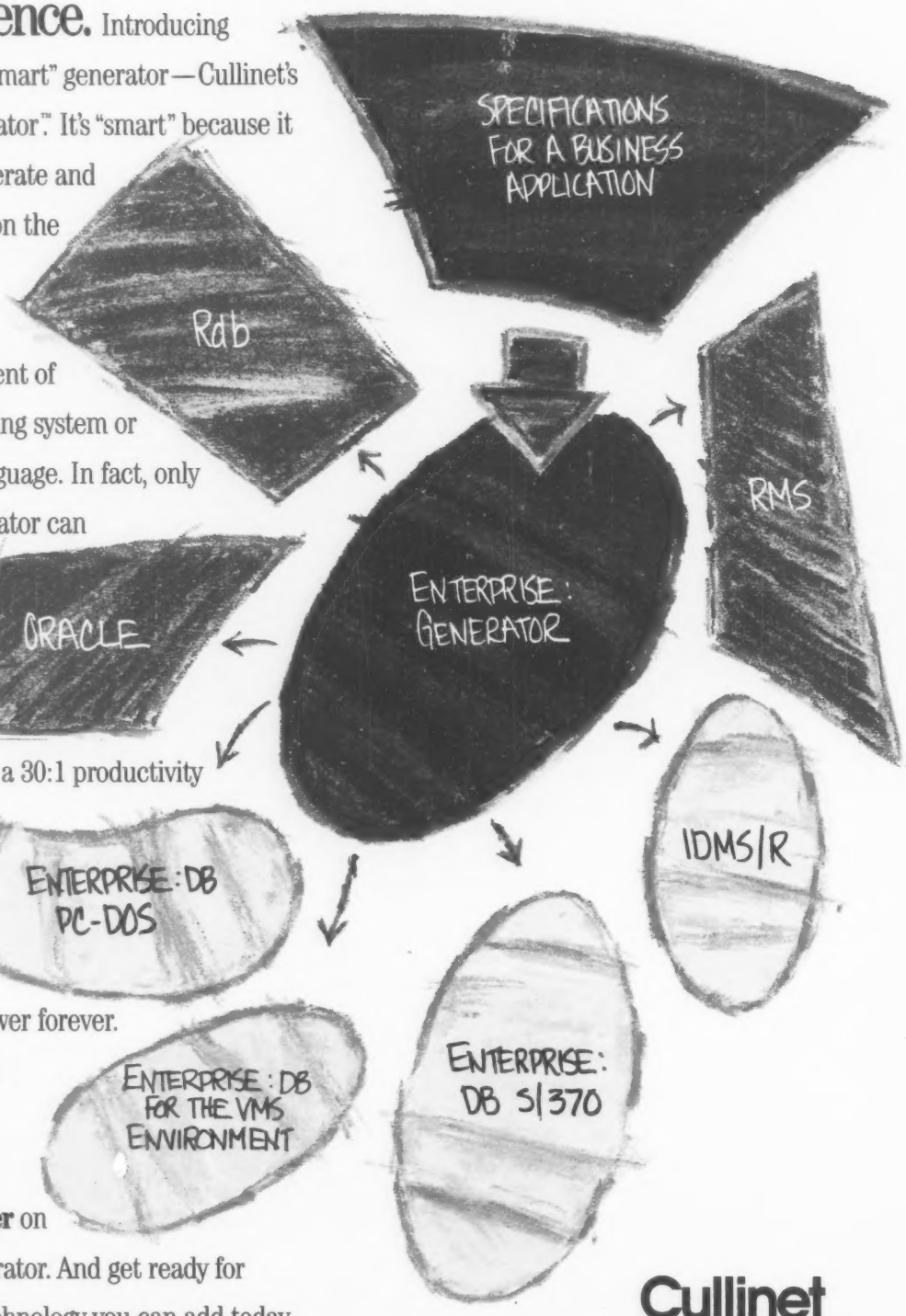

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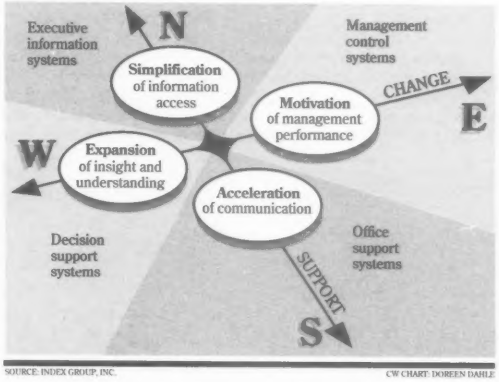
executive involvement might be adequate if the motivation was merely computer literacy. However, the same approach would be a miserable failure if the basic motivation was to support a strategic redirection or reorganization of the business.

In addition, it is common for eventual users of the system to have several motivations but to articulate only one at first: "I want our ESS to be a learning experience first, but then I intend to use it to help drive a fundamental change in the way we do our business." Being aware up front of this direction or potential evolution is critical to avoid executive disappointment later on.

Just your type

Based on need, there are four kinds of executive support systems; the North-South axis represents support-only systems, and the East-West axis shows change-oriented systems



SOURCE: INDEX GROUP, INC. CW CHART: DOREEN DAHLE

Consider, for example, the chief executive officer of a large energy firm who ordered that an executive support system be installed in the offices and homes of his management committee executives. His expressed rationale at the time was that the senior executive group needed to begin to move into the 20th century. The system provided electronic access to management reports already available in hard copy, electronic mail, calendaring, word processing, spreadsheets and an electronic news service.

Use of the new system was fairly active for a week or so, then it fell into disuse by all but the CEO, who was quite disappointed. When asked what his purpose was for creating the system, he said, "Well, what I really wanted was for the management committee members to start looking at the business in new ways and to think more strategically." Clearly, a lead-the-horses-to-water approach did not work.

In contrast, a group of managers at Eastman Kodak Co. quickly became active users of a customized IS that helped them implement a new business strategy. In this case, the motivation for the system was made clear by the group executive: A reorganization aimed at cutting manufacturing costs and boosting product quality required the adroit coordination of manufacturing facilities on a global basis. Manufacturing managers now needed information in a form that never existed before, and it was clear from the outset that there was no way for this strategic move to be executed quickly and well enough in the absence of executive support tools.

Support or change?

Achieving clarity is certainly crucial (see chart above). The diagram spells out four primary areas of potential impact that an ESS can deliver. Where on this picture is the intended emphasis of your company's ESS? Different areas of emphasis call for different design and implementation strategies. The four primary areas — simplification, acceleration, expansion and motivation — form the basis for building most executive support systems.

Simplification addresses the need to quickly and easily maintain one's feel for the business. This type of ESS provides flexible access to, and formatting of, the wide array of operating data typically contained in the piles of printed monthly management reports.

The complaint that managers receive too many voluminous reports does not mean that the reports are all useless; however, it may mean that managers spend two or three hours going through the reports each month just to extract the relatively small amount of data they really need.

Some managers say that the information they receive is too superficial or incomplete. They want to be able to see what is behind the numbers that interest them. Others are frustrated that it is so hard to see trends and gain insights from lists of numbers, and they need a more graphic, visual representation. If you hear this type of complaint, you are hearing the need for simplification.

Many of the executive information system software packages excel in this area. They provide the visual representation some managers need to spot trends, and many of them allow users to "drill down" to greater levels of detail in which they are interested. Furthermore, off-the-shelf packages address the specific need being felt here: the delivery of the information. Simplification has more to do with the format, depth, frequency and presentation of information than with how it is used.

The downside of the commercial

The right user for the ESS

BY KELLY SHEA
CW STAFF

Before you go off and set up an executive support system — no matter what type it is — be acutely aware that not every executive is going to be the perfect candidate for using one. Some people are just naturally more inclined than others to use an ESS. What makes a good ESS user and what constitutes an executive who may be less successful using one?

Computerworld talked with IS professionals implementing ESSs and found that while the distinction between a good and bad candidate is not cut and dried, two requirements are evident: The executive must want to have an ESS in the first place; and, contrary to what might seem obvious, the successful ESS user need not be computer literate.

So say several ESS developers, including Tom Holmes, worldwide manager of executive information systems and office technology at Du Pont Co. in Wilmington, Del. "It takes an executive who has an appreciation for the value of information and an appreciation for the role that information technology plays in the organization," Holmes claims. He adds that executives who are successful with ESS "don't have to be comfortable with computers, but they have to believe that using computers is important to the success of the organization and that there is a business need for the system."

IS pros stress that upper level executives will be the most successful with these systems. "The higher up you get in the organization, the more information needs to be summarized, and that's what the ESS can do," says Dave Burton, manager of advanced applications at Dow Chemical Co. in Midland, Mich.

He and others add that executives whose style of management is more hands-on — those who feel more comfortable with the personal touch in managing — would probably be less inclined to use an ESS to full advantage than those whose style is to work more with numbers. The latter group has a need for the kind of review and support that an ESS can provide.

Alan McClurg agrees. Vice-president of support systems at Society Corp., a bank holding firm in Cleveland, McClurg says that "the more intuitive the individual is, the less receptive he's going to be to an ESS. The more analytical an executive is, then the idea of working with the machine is going to be more acceptable." But he points out that in no case can you push an ESS on any type of person. At Society, McClurg tries to get a system into the senior vice-president level before pushing it at the executive vice-president level. "As it gets into the organization and is accepted and used by those who do want it," McClurg explains, "those who weren't so sure they wanted one become more interested in it."

A final characteristic of successful ESS users is that they should be willing to help IS develop the system. "They can't get a good product unless they share their needs with the person providing it," Holmes says. If ESS users give IS their time and expertise during the development of the system, it will come out the way they want it. And that really is the bottom line for IS. ●

packages is that they do not necessarily address the other three dimensions of ESSs, and too often, they are used as a catch-all solution. They should not be purchased as a substitute for spending time determining the user's real requirements.

Acceleration refers to the way electronic messaging, voice mail, calendaring, word processing and other office support systems can accelerate the flow of communications. That may not sound like an ESS executive support system to some in information systems, but consider the following:

A manager receives monthly reports on paper and frequently has questions about some of the data he sees. He pulls out a few pages, scribbles his questions on them and gives them to the person in charge of that area for clarification. The problem is, he distributes so many questions that he has no reasonable way of keeping track of whether he has received an answer. Further, the delay that occurs before he receives an answer often makes the answer irrelevant.

An ESS with a messaging capability, or the option of writing notes on the same screen you are reviewing, addresses this problem. The manager does not have to tear up his reports or give away pages he may need. He knows his message will be read the next time the recipient logs on, with no telephone tag. He can also see what he has asked them and when the response is received.

Another feature of acceleration is that it removes time and location as constraints. For example, at the beginning of the personal computer revolution, a leading floppy-disk supplier's management team was trying to cope with the transition from a company growing at a 30% annual rate to one growing at 300%.

High demand

Prior to the explosion in demand for its product, printed management reports and the weekly management committee meeting in the headquarters conference room allowed the senior executives to feel in control of their business.

Once the growth hit, though, everyone was on the road setting up manufacturing and distribution centers around the world. The printed reports piled up, the conference room was nearly empty during the management committee meeting, and the valuable face-to-face exchanges that once took place in those meetings could not take place.

An ESS was developed to provide electronic access from anywhere in the world to the previously printed management report information.

> Simplification has more to do with the format, depth, frequency and presentation of information than with how it is used.

The reporting system was built around a core of E-mail and office automation applications, so the executives could annotate and share the reports with one another and resume their "face-to-face" conversations electronically, regardless of their location.

Simplification and acceleration make up the North-South diagonal of the figure on page 87. This is called the "support" axis because these functions support the routine information- and communications-handling tasks of management. They make managers more efficient without necessarily changing the way they manage.

ESSs that create change

The East-West axis of the figure has a different flavor; it is the "change" continuum. It makes managers more effective by allowing them to change the way they manage.

For this reason, developing this type of ESS requires much more up-front analysis of the business priorities and management processes than the "support" line does.

The East-West diagonal consists of expansion and motivation. Expansion refers to the way a properly constructed ESS can

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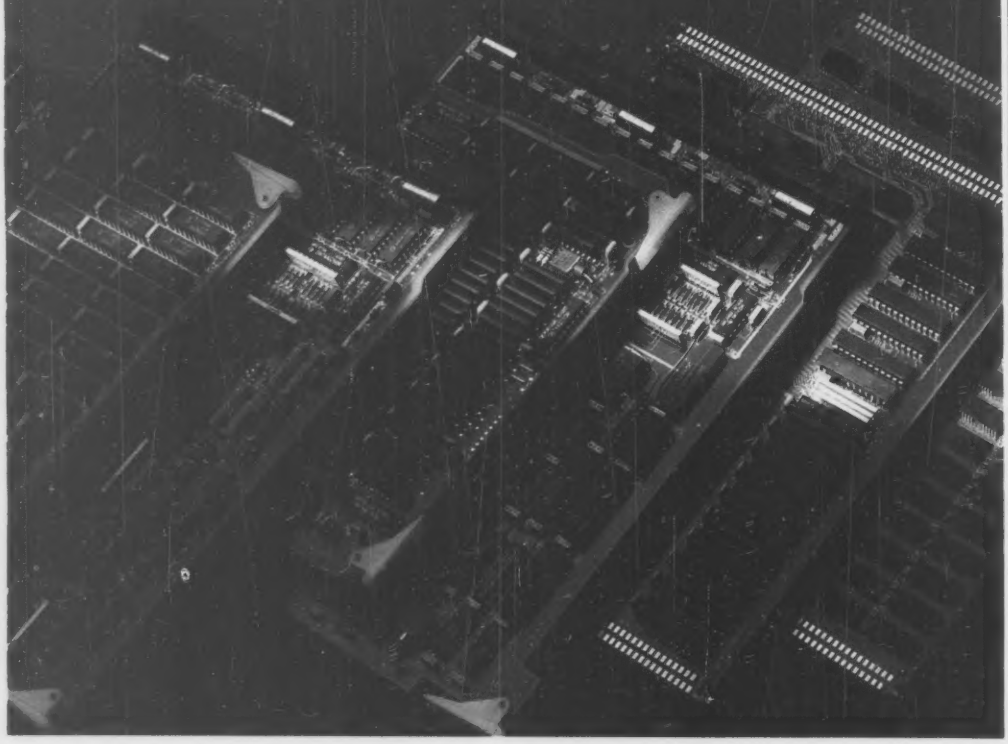


INTERVIEW

Getting it right the first time

A successful executive support system, says ESS expert James Wetherbe, will cross functional and departmental lines, should be jointly designed, ought to be based on a structured interview and probably will be born of a shotgun prototype

Building an executive support system (ESS) is not as simple as setting up one system for everyone. There are different needs to fill and different types of systems that you're going to be providing. James Wetherbe is professor and director of the MIS Research Center at the University of Minnesota in Minneapolis and an Index Group, Inc. Research Fellow. He has worked for more than 20 years helping information systems organizations develop ESSs. Recently, he spoke with Associate Editor Kelly Shea about getting it right — the first time around.

How do you help people set up successful ESSs?

A lot of the work I do focuses on helping IS find out what executives need from an ESS. There's a real tendency just to push products in front of people.

IS managers should start with the understanding that the executives don't know what they want. Most people designing systems assume that they do. So the designer comes in and says, "What do you want from the system?" The executive thinks, "Maybe I should know. I don't want some technical person thinking, 'What do they pay that guy for?' " You kind of get into a situation where it's the blind leading the blind.

So what happens to the ESS in this case?

What often happens is that executives get overloaded with information they don't need. And they'll complain, "I don't need another system: I can't use all the information that I have now." Or when systems are given to them, they can't get what they do need from them. And it costs a lot more to change systems after the fact than before the fact. It's a little bit like building a home: If you want to add a bathroom at the blueprint stage, there's very little cost compared with adding it after it's done.

Is IS doing something wrong in the planning stages?

Yes. Historically, someone from IS just comes in and asks the executives what they want, and then IS goes away and develops it and spends a lot of money, and then they've got to change it. Another approach that's been used is to ask the executives what they want and then have them do a sign-off to contractually obligate them to like it. The third thing that'll happen is IS will go in and show the executive the information and say, "What do you think about this?"

But guess what happens when you offer executives lots of information? They say, "Looks good, I'll take it." Maybe they can use it, maybe they can't, but they'll ask for it because they're not sure. In some of the research we've done, we've actually offered managers cosmetically impressive, useless reports to see if they'll take them. And they will. That's the way that people tend to approach it.

What are some of the mistakes IS makes in ESS design?

There are four fundamental mistakes that IS makes in trying to find out what information an executive needs. Mistake No. 1 is forgetting that information transcends departmental or functional values. If you're going to have something that's going to help people make better decisions, you may have to focus on issues such as budget or human resources cross-functionally.

Let's say I'm a functional manager running production. I'm going to need better information on budgeting, human resources, cost accounting, marketing and sales. You may be able to get access to some of that information, but if you're really going to work on improving information to me, don't go about it without talking to other managers: You've got to look at it cross-functionally.

Mistake No. 2 is that IS tends to ask executives what they want from a system individually rather than as a group. But off the top of their heads, executives are not going to think of all the things that they want. In fact, they'll probably suffer from the "recency bias." If I ask them what they want from a system, they're going to be biased toward something they needed recently, particularly if they couldn't get it. The classic complaint designers have is that the requirements are always changing. What actually happens is what was needed *recently* is always changing. The remedy to this is to do a joint application design. You pull in a group of cross-functional managers to talk about needs.

Mistake No. 3 occurs when IS gets all these managers in the same room at the same time and says, "What do you need?" That's like a psychotherapist saying to a patient, "What type of therapy do you need?" IS has to ask different types of questions. Try and find out what executives want from their ESSs without coming right out and asking them.

So one of the things I've done is to try and develop an interview to help people. It consists of five questions: What are the biggest problems you have accomplishing what you try to accomplish? What are the major decisions that you have to make as a manager? What are your critical success factors — the things that must go right for you to accomplish your goals? That leads into finding out what information they need. You need to ask lots of questions to look for a pattern and catch all the possibilities. You end up providing some structure to the process.

The last two questions center on an ends/means analysis. You've got a business process that takes an input that creates an output. The output is the end. The taking of an input through a process is a means. The question is, how do you get feedback on how you're doing? Not getting it is like hitting golf balls in the dark. These questions make up a structured interview, which gives you a concept. But when you're solving a problem, you go from conceptual to specific.

Which leads to the fourth mistake?

Yes. Mistake No. 4 pertains to the way people really solve problems. Some people like to be very analytical and methodical, think everything through before they take any action, and other people like to do it through trial and error. The reality is that most people like to solve problems by getting started. So don't try to build the whole ESS. Get some concepts and show them a few things based on the structured interview and let them experience it in the form of a prototype. That will trigger their creativity, and they'll come up with other ideas. The interview has them in the domain, and prototyping is a technique on the problem-solving side.

By the way, at the prototyping stage, cost is less important than it was when you started. Executives usually want to know cost right up front. Don't get into it if you can avoid it. Start showing them some stuff to find out what they really need. When they see what they really want, they'll figure out a way to get the resources, because the value is there. If you set the price and force yourself to stick with it, you're probably not going to get the requirements met.

Do you think it's better for IS to build an ESS than buy a shell?

It goes back to building a house. Until you experience it, you're not sure what you like. From the interview, you get a concept of what the executive wants. Then you do a prototype, and based on

Continued on page 91

broaden the executive's understanding and insight into the business. The system does not focus on the delivery of data but on defining the data and how it is used. Typically, this type of system provides the most value when there is a targeted business problem or specific area to tackle.

This was the case several years ago at a manufacturing company. Its manufacturing process, which involved creating a line of inexpensive consumer goods, was efficient but not low-cost, and product quality had deteriorated relative to the imports with which they competed. The question was, where in the massive plant should it invest to gain the greatest competitive impact?

The company needed to understand exactly what the consumers wanted most — that is, it wanted to let the customers define "quality" — and then it planned to pursue that target throughout every step of the design, engineering and manufacturing process.

Maintaining the integrity of the original customer request meant tracking all the links between the departments, many of which had never talked to one another before.

This business problem required an automated, ESS-type solution because of the vast amounts of detailed information the executives needed to track.

However, the automation also created the need for many more interactions between departments that were previously unaccustomed to interacting. Furthermore, it allowed the original consumer requirement to be spelled out in much greater detail, so compromises did not creep in unnoticed.

Motivation

The fourth type of executive need, motivation, refers to ESSs as a key ingredient in a management control system. Here, the system is used to change the focus of attention and behavior of executives in a management team.

For example, motivation was the name of the game for Du Pont Co.'s medical products business a few years ago. The group's new chief operating officer was leading a transition from a product orientation to a market orientation. Where once there were business units organized by product, he put into place business units that focused on specific health care markets whose needs spanned the full line of Du Pont's product offerings — and beyond.

The management teams of these new business units needed to radically change the way they looked at and understood their marketplaces. Their performance was also being measured by new standards such as customer segment, market penetration and profitability.

Here, ESSs employing the principles of modeling, analysis and management control were initiated to drive and support the needed change in the thinking and behavior of the management teams. Unlike some ESSs, these systems do not show measures of product profitability. The only profitability they look at is market segment profitability: How well is the company doing in individual places in the market? In addition, these ESSs show detailed information pertaining to less tangible measures such as how salespeople are doing following up leads.

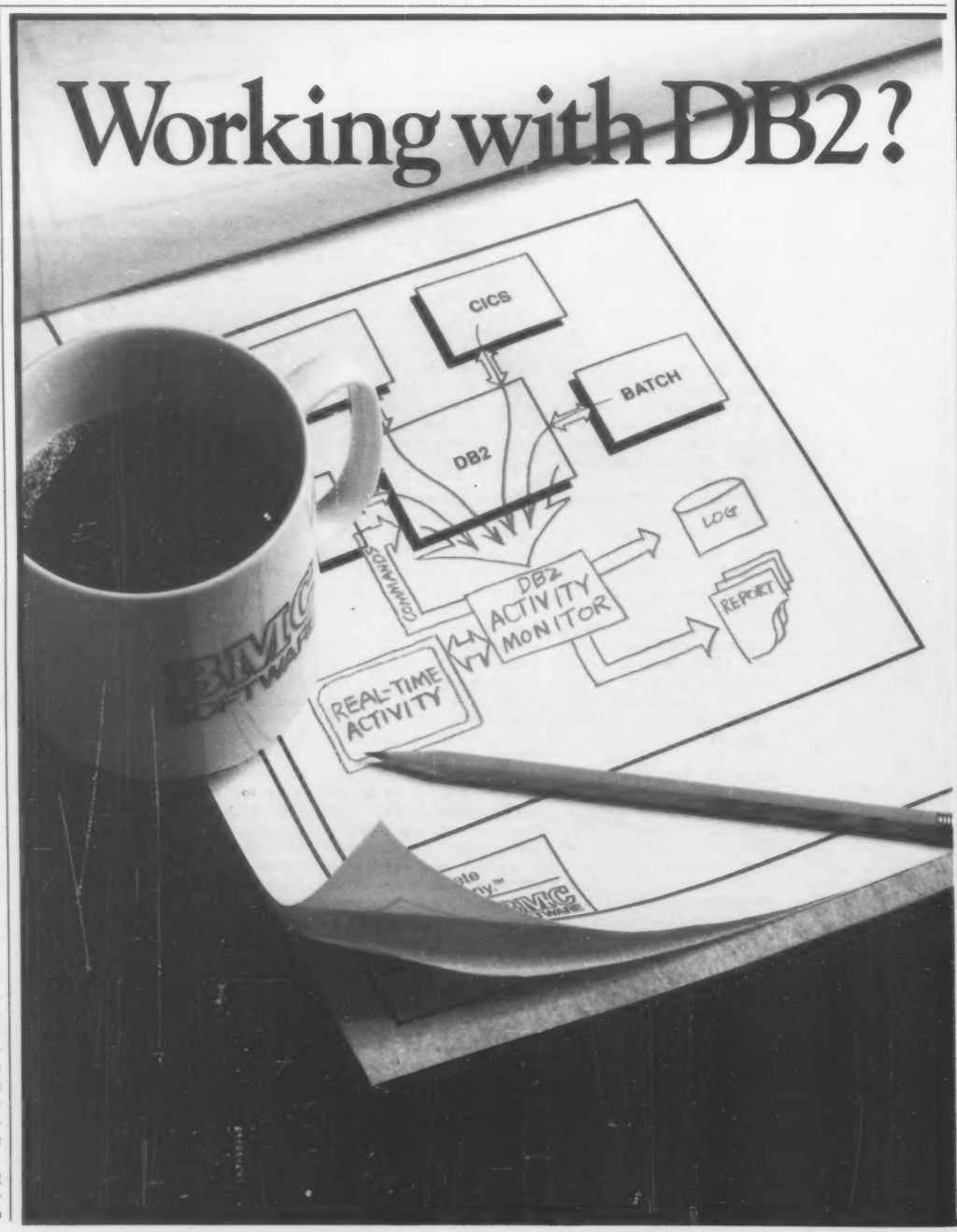
ESSs such as Du Pont's are not being used to invent new processes but to implement them. They allow executives to use information to follow through on initiatives they have begun. The ESSs might consist of a combination of planning and performance measurement data that is then used to determine the rewards, recognition and compensation of employees. In that sense, they are directly linked to motivating employees. Clearly, this type of system is not used for just communicating but for a behavioral change.

MANAGEMENT PROCESSES that are poorly informed are next to worthless, and ESSs that are disconnected from the basic management mechanisms of the business are of very limited value.

A major insurance company, for example, found that its geographically scattered independent agents were ill-equipped to sell the growing number of insurance products and financial services the company was beginning to offer. Executives knew they needed to change how the agents sold the complete product line and how they were supported and managed by the company.

Through an ESS, executives determined that segmenting the agents by geographic areas was no longer useful. Instead, they noticed, the agents fell into three groups according to their performance levels and earnings. One group, the star performers, already produced high volume and earned high incomes. The second group had real development potential. Achievers already, these agents would go much further with additional training and support. The third group, nicknamed the "steady part-timers," always seemed to do just enough work to earn themselves a modest income and no more.

Clearly, the insurance company could gain the most by managing the steady part-timers in a laissez-faire manner and



concentrating attention on the other two groups. The system allowed them to segment the agents by their own performance expectations because it provided the information required to measure and categorize them.

In some cases, an ESS of this type can go a step further and allow executives to analyze profitability, pushing their sales forces toward the most profitable products rather than rewarding them on straight-dollar volume without regard to profit. Again, by their nature, motivation-oriented ESSs require a great deal of analysis before implementation because they involve changing the behavior of people and the management processes by which work gets done.

The preceding illustrations strongly underscore the importance of clarity of purpose if you want to develop ESSs that make a difference. An East-West system would not have helped managers in the floppy-disk company stay in touch, and a North-South system would have failed to achieve the change in thinking and action needed by Du Pont. Unfortunately, this kind of mismatch occurs all too often in the ESS efforts under way in many companies.

Don't forget the context

Beyond clarity of purpose, the second major success factor is integrating the ESS into the management processes already in place in your corporation. A weekly operations review meeting is a management process. So is a master manufacturing schedule session, a pricing committee meeting, a quarterly budget update, the capital appropriation process or the incentive compensation plan. Some management processes are less formal, such as setting goals with a subordinate.

Management processes that are poorly informed are next to worthless, and, by the same token, ESSs that are disconnected from the basic management mechanisms of the business are of very limited value.

In fact, it is the connection with management processes that normally provides the executive with a solid reason to learn and keep using an ESS in the first place.

The senior executive who initiates an ESS without an eye to how it will support or change management processes — or the IS staff that allows this connection to be ignored — runs a serious risk of ending up with a system that will fail to achieve its potential. Ultimately, it is the executive sponsor who must take the lead here. But IS can't take a back seat, either.

For example, executive support systems at Xerox Corp. were fairly benign and unevenly used until the CEO, the chief of staff and the director of ESS decided to completely reengineer the corporation's planning process around the capabilities of the existing ESS. This single act, which required the executives to make active use of the ESS to produce and negotiate their annual and long-range plans, raised the stakes on the ESS and turned it from an information/communication utility service into an essential management tool.

ESSs are becoming key tools in the executive arsenal. In this era of corporate reorganization, mergers and acquisitions, turbulent markets and increasing competition, managers now more than ever need more effective ways to understand their markets and their competition and to guide their operations and their people.

However, building these systems requires pushing hard to get the intended user's business problems, information needs and management processes to rise to the surface. Only when the executive support system takes all of those factors into account, actually inducing change rather than merely supporting it, can the executive fully tap the power of information and information technology. •

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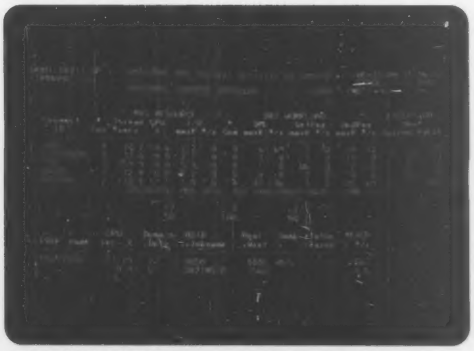
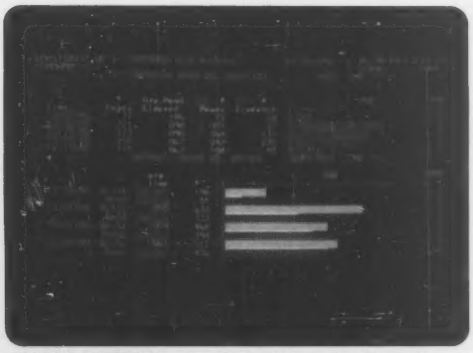


CURRENT WORKLOAD screen. Performance data summary for DB2 transactions, grouped by connection type. Transactions not performing at peak efficiency can be selected for more detail.



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Continued from page 89

that, you can go see if there's something prepackaged. But the worst mistake you can make is to start showing someone packages. Until they've rigorously thought through it, you won't know if a package will do the trick or not.

If you are trying to build an ESS for one person, how does the joint application design work?
Even if you're designing it for one person, you should still get a cross-section of people's input. It's like having a focus group.

How long should the structured interview take?
Half a day to a day.

How long should it take IS to come back with a prototype?
Two to three days.

Really?
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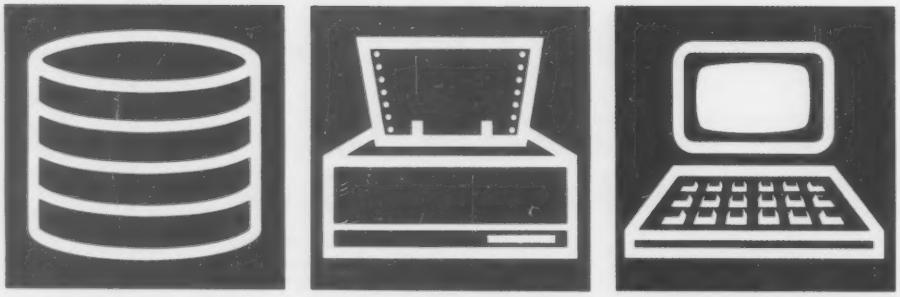

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INDUSTRY INSIGHT

Charles Varga

Freedom has a high price

With computer companies and software developers demanding more court time than tennis aces these days, nonlitigative avenues toward resolving the kind of software protection questions that now crowd the dockets are coming in for some welcome exploration. However, two forums on the issue held during the past several months served to remind the industry that freedom from lawsuits, like most other freedoms, comes with its own set of responsibilities.

In February, veteran software industry litigator Milton R. Wessel hosted the first major software copyright conference, held at Arizona State University. The ASU Computer Software Conference marked a quantum step away from litigation as the sole alternative.

Instead, it developed an academic legal consensus and a solid starting point in furthering nonadversarial, expert and consensus-acceleration approaches on many of the important controversies that surround computer software copyright protection.

Talking

Three months later, at the San Diego Adapso conference, a group of business executives from member companies submitted and discussed a position paper on guidelines for declaring or waiving property rights in interfaces and languages.

The root issues are easy to understand, if not easy to resolve. IBM and other large firms want no restraints by any independent developer's claims of ownership of interfaces or languages that would inhibit the processing or movement of data. Developers, on the other hand, want property rights to the interfaces and languages on which they have spent time and money creating and the ability to earn royalties from them.

If such rights are successfully asserted, a corollary issue arises: What you do about those who stumble into the use of proprietary information and lan-

Continued on page 95

Iris drops into profit

Start-up follows dotted path from red to black

BY PETER BARTOLIK
CW STAFF

BEDFORD, Mass.— For most people, connect-the-dots adds up to a simple, inexpensive way to keep the kids quiet on a rainy day. For Iris Graphics, Inc., a 5-year-old printer manufacturer located here, it is the concept that allowed the firm to turn the corner from a floundering start-up to a successful and profitable venture within one year.

The company does not actually connect the dots, but its color ink-jet printers utilized a patented variable-droplet technology to essentially fill in between and produce output that, to the naked eye, appears to be photographic-quality.

Earlier-generation Iris printers were based on less sophisticated technology that produced uniform-size drops of ink on print media that were clearly visible to the naked eye. That was insufficient to service the high-quality demands for pre-press proofing of documents and art generated on computerized electronic printing systems as well as for design, mapping and other imaging applications.

Leap around

The generational leap has turned the company's fortunes around. In 1987, it shipped just nine of the older Series 2000 printers, as it was ignored by its chosen market niche.

However, the 3024 printer was initially shipped in January 1988 and Iris closed out the year with total sales of 119 units; just last month, the company shipped the 200th system.

That may not sound like much to get excited about, but with an end-user price of $75,000 per unit, it added up to a revenue of $6.7 million in 1988.

"It's such a high-end, high-quality product that you're not looking at a huge number of placements," said Gregory Porell, an analyst at market research firm BIS CAP International. Porell's company estimates that the market Iris is reaching absorbed a total of 300 units at a cost of $20 million last year; by 1993, he projected, that could total 4,000 units and $100 million in sales.

The substantial capital investment required for an Iris system did not deter the Providence Journal Publishing Co., a Rhode Island daily newspaper that is awaiting an interface to the Scitex America electronic publishing system. When it is up and running later this month, the Iris system will provide page proofs for all advertising and editorial pages, according to Linda Rasmanis, systems manager for publishing.

"We checked out alternatives, but the cost of materials was prohibitive," Rasmanis said. Iris boasts the ability to wrap any substrate within thickness tolerance, from paper to cloth, around its print drum for use as print media, resulting in a price as low as less than 10 cents per print.

With one-third of a lucrative market niche already in its grasp, Iris is not likely to sit still. President and Chief Executive Officer Al Lucchese, credited by

Continued on page 97

STELLA JOHNSON

Iris Graphics' Lucchese *projects company growth in 1990*

Up & Coming: *Iris Graphics, Inc.*

Founded: April 1987
President and CEO: Alphonse M. Lucchese
Employees: 75
Product: Variable-droplet, continuous-flow color ink-jet printing system
Mission: "Iris is sitting up at the high end. My goal is to drive product pricing down. Once we have that, we'll be one of the leading vendors of color hard copy. We definitely will be the market leader in continuous-color ink jet."

Inside

- IBM raids piracy networks in Hong Kong and Taiwan. Page 95.
- Prime clarifies revenue rumors. Page 94.

XA Systems picks a piece of Peat Marwick's products

BY ROBERT MORAN
CW STAFF

LOS GATOS, Calif.— With the acquisition of KPMG Peat Marwick's computer-aided software engineering (CASE) product line, programmer productivity toolmaker XA Systems Corp. recently transformed itself into a full-service CASE vendor and freed KPMG Peat Marwick to concentrate on its consulting business.

XA Systems, the developer of Xpert Series programmer productivity software tools, acquired the PMAT CASE product line, which includes five design and reengineering tools, for an undisclosed amount, according to a company spokesman.

Under the terms of the agreement, XA Systems will have full responsibility for marketing, sales, support, distribution and development of PMAT CASE, said Lucy Edwards, XA Systems' president and chief executive officer. "We will sell and market around the world. Marwick will install and consult for the CASE product line."

According to Dick Worrall, a partner in charge of information technology at KPMG Peat Marwick, the alliance allows KPMG to concentrate again on its consulting services. "It is difficult to structure a successful product sales organization within the confines of a Big Eight accounting firm with restrictions on the level of, and accounting for, investment in new products," Worrall said. "We couldn't, for example, capitalize our product investments."

As part of the agreement, KPMG will have an investment in XA Systems "somewhere below 10%" and a small share of the royalty with the CASE products, Edwards said.

Worrall would not comment on the company's investment in XA Systems but said that KPMG has committed to a research and development investment of a minimum of about $250,000 per year. "We are jointly undertaking an R&D program to both refine the products and further facilitate their use as tools for our consulting practice," Worrall said.

Thomas O'Flaherty, director of research at Broadview Associates in Fort Lee, N.J., said that the agreement removes the difficulty of running a software operation inside of a predominately professional service organization.

"Sometimes the consulting service may not believe that the products the organization has to sell are the right ones for the client," O'Flaherty said. "And then there are the concerns of who gets credit for the sale, along with the propensity to throw in software at a lower price."

Although such clashes can still take place with the new arrangement, XA Systems will still get royalties, O'Flaherty said. According to Worrall, the consultancy will make explicit referrals to XA Systems, and XA Systems will make explicit referrals to Peat Marwick.

Prime message: Cancel the alarm

Don't hit the panic button. That was the message that Prime Computer, Inc. hurried to get out to the industry in the last hours of last month after the Dow Jones & Co., Inc. news wire carried a reference to a projected $13.6 million loss for the embattled computer company's fiscal year 1989.

The figure was based on information supplied to J. H. Whitney, the venture capital firm whose friendly bid for Prime has been unanimously accepted by Prime's board.

However, Prime rushed in to state, "These projections neither represent the company's current 1989 operating plan, nor D. R. Acquisition's operating plan for Prime." D. R. Acquisition is the subsidiary formed by Whitney to effectuate the Prime purchase.

Rather, Prime said, the projected numbers represent "hypothetical alternative operating plan actions, including potential accounting and operating process changes, as well as substantial additional restructuring changes."

In addition, according to Prime, nothing is yet set in stone. Which, if any, of the proposed scenarios will ultimately be implemented, and in what year, remains to be seen.

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IN BRIEF

It's not over till it's over

Miniscribe Corp.'s 1986-88 financial statements may not be a total loss. An internal investigation at the Longmont, Colo., disk drive maker found that its financial reports for 1986-88 were unreliable. But company auditors Coopers & Lybrand recently announced that it might be possible to accurately restate the financials, which could then receive the auditor's endorsement.

.....

One ringy-dingy

Telenet Communications Corp., a data communications firm based in Reston, Va., has acquired an international telex carrier based in New York. Telenet, which took an initial stake in 1986, said it bought the remaining 34% of CCI shares for an undisclosed sum.

.....

Lessor more

Technology equipment lessor **Capital Associates, Inc.** is teaming up with Japanese venture capital firm **Nippon Investment & Finance Co. Ltd.** and an unidentified Japanese concern to launch a Japanese venture company to buy, sell and lease high-tech equipment — and, simultaneously, to launch Capital Associates into the Asian market.

.....

Poqet pool

Japanese giant **Fujitsu, Ltd.** is taking an interest in 1-year-old Sunnyvale, Calif.-based PC hardware start-up **Poqet Computer Corp.** — a 38% interest, to be precise. The investment will boost Poqet from development to marketing stage regarding its maiden offering: a battery-operated IBM-compatible laptop slated for introduction this summer.

.....

Out-sourcing

There was one less Source in the telecomputing market last week as Columbus, Ohio-based **Compuserve, Inc.** swallowed up MacLean, Va.-based online information service provider **The Source.**

IBM crackdown uncovers signs of counterfeiting ring

BY CHRIS BROWN
IDG NEWS SERVICE

HONG KONG — IBM has uncovered what it believes to be additional counterfeiting operations in Hong Kong and Taiwan in what is shaping up to be a regional piracy network.

Two Hong Kong firms and two firms in Taiwan were raided in the middle of last month as part of IBM's continuing crackdown on copyright violators, according to an IBM announcement.

IBM conducted the raids in Hong Kong under a so-called Anton Pillar ordinance, which stipulates a civil crime and gave IBM a court order to conduct the raids on its own.

The firm did not pursue criminal violations, which would have necessitated help from the Customs and Excise Department.

Seized in the raids were IBM personal computer keyboards, motherboards, displays, boxes with the IBM logo and business paperwork including sales and invoice forms. The fake parts were alleged to be used to build counterfeits of IBM's Personal Computer XT.

In Hong Kong, the alleged pirates are Richcom International Trading Co. and Keen Systems International Ltd., while the Taiwanese interests are Jeiko International (which has a Hong Kong office) and Enson Technology.

Additional Taiwanese firms may be named as the case unfolds, according to Daniel Ashley, IBM's general counsel for Asia/South Pacific.

Early reports suggest that the keyboards were manufactured by Keen Systems International, while Richcom handled the business activities. In Taiwan, Jeiko and Enson were believed to be involved in the manufacturing of fake motherboards and displays, Ashley said.

Ashley described the four Hong Kong and Taiwanese firms as the "main source" of counterfeited PCs to mainland China.

He said that last October's Shenzhen cases had led IBM to believe that there was more counterfeiting going on in Hong Kong, which was understood to have supplied many of the fake parts to the Shenzhen pirates, although no Hong Kong firms were named in last year's proceedings.

Ashley also said the counterfeiting operations were becoming increasingly sophisticated following IBM's actions in China. After the Shenzhen legal victory, IBM placed full-page advertisements in the Chinese and Taiwanese computer press as a warning to other counterfeiters.

"I think what we noticed in the investigation is that they became more and more cautious as the Shenzhen case became more publicized," he said.

He noted that the Hong Kong and Taiwanese firms had taken up the practice of not affixing the IBM logos on any of the equipment.

Instead, all of the IBM labels and stickers came separately, along with a map describing where they were to be affixed to the hardware. Apparently this step would have been taken by dealers.

Ashley predicted the case could take six to nine months to litigate in Hong Kong. Unlike the Shenzhen cases, where IBM was denied damage claims, the firm hopes to receive compensation from the Hong Kong firms involved, as well as an injunction on any further counterfeiting.

Varga

FROM PAGE 93

guages without permission? Who should be responsible for informing the user that someone out there has proprietary rights?

Attorney Stephen H. Beach of Stamford, Conn., former vice-president and general counsel of Control Data Corp. and an active participant in the Adapso conference, said, "If you're going to go the protective route, then the burden to warn should be on the person who developed the product. The fact that he claims proprietary rights to that interface software or language should not mean that he can arbitrarily sue you."

The bottom line for both large vendors and emerging firms in our industry is a declaration or waiver of proprietary rights on a timely basis.

The ASU Computer Software Conference Report on issues surrounding copyright protection is due out in about a week. It may raise as many new questions as it suggests answers. There are valid points, both pro and con, to be made in all approaches of a nonlitigious nature.

Some observers felt that the advice of a majority of scholars could not be dispositive in the software copyright area and did not agree with the premise that critical questions of great importance to a particular company should be decided by people with no financial stake in the outcome.

Milton Wessel's approach to these controversial issues is a wise one. He answered the software industry's criticisms forthrightly, indicating that the issue was not disposition of cases but simply academic legal input to the dispute resolution process. Even in the courts, he said, critical questions are decided impartially by people with no financial stake in their outcome. "We must begin somewhere," Wessel said. "The nonadversial, expert, consensus-acceleration approach . . . is a good place to start."

Even when the protagonists are industry giants that can afford to fund a day in court to resolve a dispute, users — specifically large IS shops — ultimately bear the litigation-laced burden of increased software costs.

Varga, a 20-year computer industry veteran based in Frenchtown, N.J., is publisher of "The Cerberus Report," a study of industry mergers and acquisitions.

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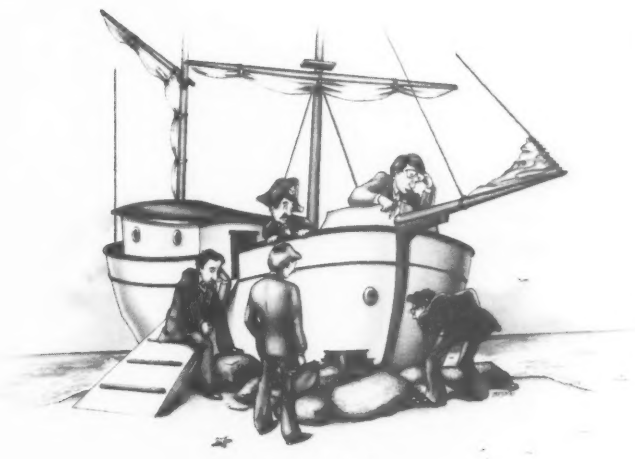

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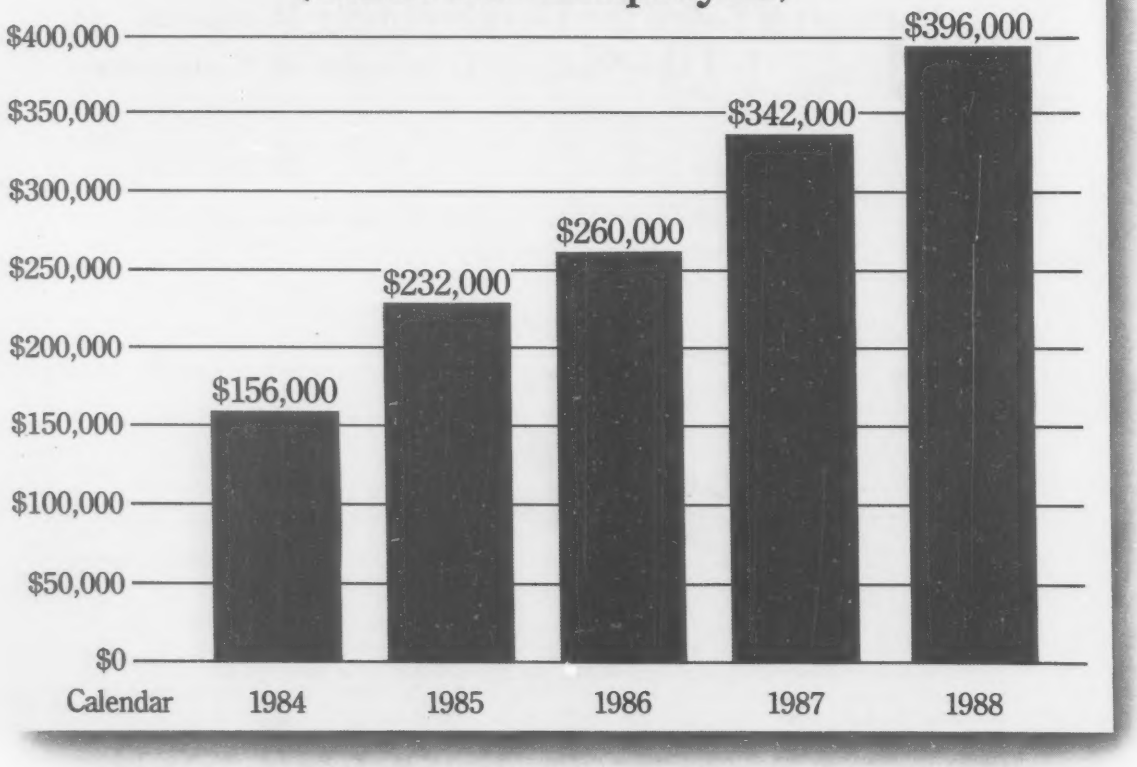

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Iris drops

CONTINUED FROM PAGE 93

analysts and investors with the turnaround, sees opportunities for even more expensive machines and, more enticing, low-end systems aimed at the burgeoning scientific and technical markets for applications such as solids modeling and three-dimensional design that are soaking up hundreds and thousands of workstations.

"We'll be expanding our product line up and down," Lucchese said during a recent interview. "By the end of 1990, we will have a full product family." The company is planning a third-quarter introduction of a new high-end model and expects to follow that in short order with a low-end, more compact device. Lucchese said he expects prices for the products to range from about $25,000 to more than $100,000. He projects that the company will almost double in size this year to about $11.5 million and continue to grow at a manageable rate of 80% to 100% each year in the foreseeable future.

With the big-ticket printers, Iris is playing from strength, according to Porrell, who said the company has demonstrated understanding of the graphic arts market and knows the channels of distribution. With lower-priced systems, he added, "it's a whole new ballgame."

In its current niche, Iris faces essentially no competition for electronic systems, Porrell said. However, at the low end, it will start to go head-to-head with well-established organizations such as Hewlett-Packard Co., Versatec, Inc. and Calcomp, Inc. and face the issues of brand-name recognition, broader distribution channels and software development.

Those are typical problems for any start-up that has been successful and wants to expand, Porrell noted, and he said Lucchese has assembled a team of skilled employees who should be well-positioned to overcome them.

Lucchese, a former IBM systems engineer and marketing representative who did subseqent sales and marketing stints at Raytheon Data Systems, Davox Corp. and most recently Xyvision Corp., has already pulled off one feat.

When Lucchese was hired by the directors of Iris in April, 1987, the company had little cash on hand and few sales on the horizon. He was committed to technology that was being developed in-house and introduced the 3024 six months later. The successful turnaround enabled Iris to raise $4.8 million in a third round of financing in early 1988, bringing its total capital funding to approximately $9 million.

Lucchese replaced founder John Oberteuffer, who resigned in November 1986. Although Oberteuffer had begun development of the Series 3000 product, "in the judgment of the board [of directors], it was time for a change," said Walter Levison, a partner at Aegis Fund Management Corp., a venture capital firm based in Lexington, Mass.

Prints Charming

Iris Graphics uses patented technology based on continuous-flow ink-jet printing developed by researcher Dr. C. Hellmuth Hertz of the Lund Institute in Sweden. It is the only U.S. company licensed to use the Hertz technology.

Controlled by an Intel Corp. 8088 microprocessor, the Iris printer uses four ink nozzles controlling vegetable dye-based ink in the standard graphics colors of yellow, magenta, cyan and black.

Although the printer's resolution is a mere 300 dot/in., far short of graphics printing standards, the variable dot control produces output that is visually five times as good, or of photographic image quality, the company claims.

Some four million ink droplets per second can be generated at up to 31 droplets per pixel, producing up to 512 shades of gray for each color. Electrodes in the tips of the ink nozzles create a charge on the droplets that is not required on print media; thus, they are deflected, resulting in uncharged droplets reaching the printing drum and creating an image.

The rotating drum, 24 by 24 in. in the current system, accepts any printable media up to the thickness of a business card, according to Iris President Al Lucchese. One user has been able to generate output on silk, while another has printed on greeting cards.

Interfaces have been developed to systems from Sun Microsystems, Inc., Hewlett-Packard Co.'s Apollo division and IBM's RT line, among others.

Although the company plans to develop a low-end system priced at approximately $25,000, Lucchese said he has no plans to take on HP or Canon U.S.A., Inc. While the printing technology is relatively easy to transfer to variously sized and priced systems, Iris will have to overcome a technological hurdle to develop the automated media feed and loading system required to gain entry into a more general market.

PETER BARTOLIK

A MILLION COBOL PROGRAMMERS ARE A TERRIBLE THING TO WASTE.

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* The Wall Street Journal (1987) — "Survey of the Information Processing Marketplace".
* The Adams Co. (1988) — "Information Systems Management Study".

COMPUTERWORLD

Programming a new business

A former IS professional traces the steps to successful entrepreneurship

BY JACKIE M. REYNOLDS
SPECIAL TO CW

In the last decade, the information processing industry has seen countless business ventures created, only to fall into oblivion in short order. It is truly a case of many trying and very few making it.

The reasons that information systems industries have attracted so many entrepreneurs are as varied as the individuals themselves. Software and hardware development provides an incubator for bright, creative and independent people. The industry also includes an abundance of individuals who have been pushed out of their jobs by mergers, shutdowns and cutbacks. Unable to find other work, they start a business by default. Most of them have certain traits in common, including boundless enthusiasm and an optimism about the future. Initially, few possess any real concept of the realities of owning a business.

From my experience and from observing others, I have developed a list of do's and don'ts for starting and maintaining a business. They are, for the most part, simple in concept; it is the implementation that brings difficulty. In the hope of saving would-be entrepreneurs some heartbreak, I offer a few of the mistakes and successes of the first-time business owner.

Questions first

The first and all-important question is: Where does the money come from? For the individual entrepreneur launching a services business, the best answer is from you and you alone. Today's entrepreneurs are in many ways better off now that most sources of venture capital have dried up. In companies founded on venture capital, two phenomena occur that sometimes doom a business from the start. The first is the owner's yielding substantial equity and a proportionate amount of life and death interest in the success of the venture.

The second damning development is that with the advent of money, managers abandon their bottom-line mentality. In a nutshell, it is too much, too soon. The company never has a chance to grow efficiently into prosperity.

What about friends, relatives, banks? Friends and relatives often will burden you with excessive scrutiny. Even in the event that the investors are trusting, if you have any conscience at all, you will feel guilty at each downward turn of events.

Banks? Because they are in the business of making money and not taking undue risk, by the time a bank is willing to approve an unsecured loan, you are already on your way.

So what is the best way to get

DXI's Reynolds *outlines some starting business steps*

a small business started? Save your money. Stay in your job as long as possible. Take out a second mortgage. Keep the overhead low. Work out of your home. Don't spend more money than you make.

If all of this sounds too risky for you, then think how it sounds to a lender. The first rule of business ownership is that the buck stops with the owner. If it seems otherwise, then you have not identified the real owner.

If a start-up venture is too much of a risk for you to bet your life savings, then it is probably not a viable business.

Having identified the financial resources for a business venture, the next step is setting up the business. The first action — absolutely not to be skipped — is to find an attorney and an accountant whose judgment you trust. Let them advise you on how to do things legally and how to minimize taxes. From the beginning, maintain impeccable records. Your ultimate objective is to sell the business or attract new investors. In either case, it will be easier if you never have taken a legal shortcut and if all records are in order.

Once you are in business, how do you stay in it? We read a lot about finding a niche. For start-ups, it is more important to let the niche find you. Remain open and flexible. Chances are that whatever you started out to do will not be exactly where you end up. Do not be too proud or too stubborn to go with the market — let the product or service move to fit the demand.

Phase two begins when you have become a little comfortable and the money is starting to come in. There are a lot of pitfalls at this point, with just enough success to be dangerous. A sure sign of a business in trouble is when the owner spends the first big check on expensive cars or luxurious offices. Keep in mind that the second check can be a long time coming.

Another temptation at this point is to bring in partners to grow quickly. In theory, it can be a good idea; in practice, it often is the kiss of death. Entrepreneurs tend to be independent and have a very low tolerance for someone else's business practices and philosophy.

So what does it take to be a successful entrepreneur? Although personality profiles have been developed, the truth is that there are a lot of different types who are making it. There are, however, traits common to almost all of them. Review the following list for your own suitability:

- Absolute commitment. Are the hours long? If you are asking that question, you do not understand the problem. You are the business, and the business is you. You do not really spend time away from the business.
- Freedom from family distractions. It is preferable to have no family or an extremely understanding and supportive one.
- Persistence and a tolerance for boring and unpleasant work. In the early days, the work is not always a lot of fun.
- High energy and good health. There is no sick leave.
- Unquestionable integrity. Often, your word is the only resource you have.

After all that, is starting a company really worth the hardships? Yes! Ask anyone who has done it. Owning your own business has to be the modern equivalent of conquering new lands. No matter how small the territory, it is all yours.

Reynolds is president and founder of DXI Corp., a consulting firm in Atlanta.

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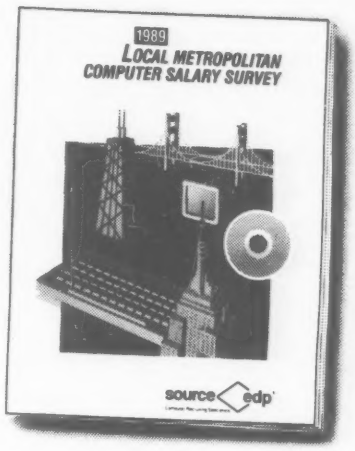

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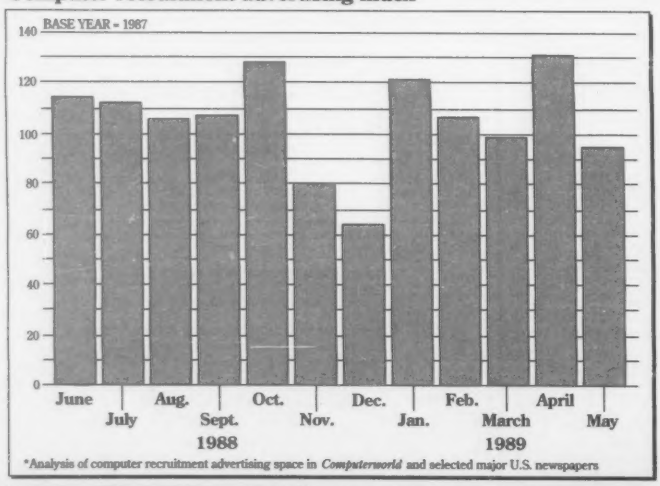

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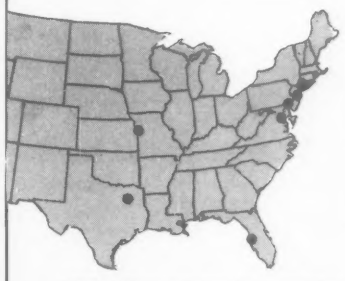

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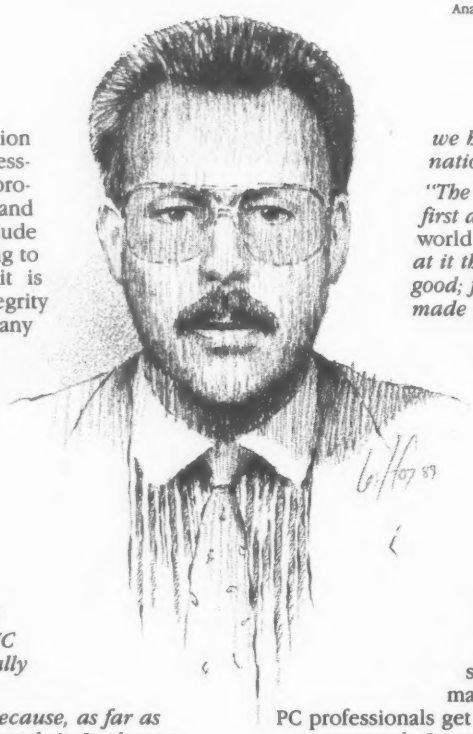

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MARKETPLACE

Service counts in workstations

Users rate expertise, speed higher than cost in technical workstation support

BY MARILYN ALIBER
SPECIAL TO CW

The technical workstation market has virtually exploded in the six years since its inception. According to an International Data Corp. (IDC) report, the market has grown from less than $25 million in sales in 1982 to $4.5 billion last year.

Initially these systems were used by technical professionals, but as prices continue to fall, users from a variety of businesses are finding that they too can benefit from the high speed, performance and multifunctionality that workstations offer.

The competitive nature of this marketplace has made vendors' service offerings one of the key variables customers use to choose a workstation. After the sale, the quality of vendor service and support is a key measurement of buyer satisfaction.

In such a dynamic market, users should ask themselves whether vendors are growing their service organizations at the same rate at which the installed base is expanding. With the product's entry into the business world, how well do vendors understand the nature of customers' diverse applications and therefore the support required?

To gauge how satisfied users are with hardware, software, training and consulting support services, IDC surveyed 325 technical workstation users.

Vendors whose equipment was represented in the study include Apollo Computer, Inc., Apple Computer, Inc., Compaq Computer Corp., Digital Equipment Corp., Hewlett-Packard Co., IBM, Silicon Graphics, Inc., Sun Microsystems, Inc. and Wyse Technology. The respondents came from various businesses, with about a third in manufacturing.

Finding best price

IDC found that, as in the microcomputer world, most of the respondents turned to the manufacturer or dealer from which they bought their systems for both hardware and software service.

Customers will find the best price by buying service along with the system, although the manufacturer is often the choice for service simply by default. Since independent service organizations have not yet penetrated this relatively new market, users are left with a limited selection of service organizations from which to choose.

As with both minicomputers and mainframes, the majority of technical workstation users from Sun, IBM, DEC, Silicon Graphics and HP arranged for on-site hardware service rather than depot repair. Such users likely choose on-site service because these systems are critical to the day-to-day functioning of their businesses. About 6% of the users maintain their systems themselves, according to the survey.

Respondents indicated that technical skill and ability along with quick response time are the most vital features of a service agreement. Most users surveyed said they were not particularly satisfied with what they get in these areas.

Technical workstation users were less concerned with the cost of hardware service. They said they are willing to pay more for quality and timeliness because in the long run, downtime is more expensive to them.

Software support is most commonly delivered in the form of telephone hot lines, according to the respondents. On-site service is not nearly as common for software as hardware. The most critical features of a software support agreement appear to be the quality of updates and ease of installation.

Users expect their software applications and operating systems to be free of bugs and installable by the customer. They were not quite satisfied with the level of support they receive in these areas.

If given the opportunity to create the ideal workstation warranty, the vast majority of respondents would include a one-year, on-site integrated hardware and software plan. Regardless of cost, users claimed to be looking for the most comprehensive service package available during the warranty period.

The respondents rated consulting services as significantly less important than hardware repair services and technical support hot lines.

IDC found that, overall, service vendors are providing the support that users require. However, users' perception of service quality varies from vendor to vendor, with the ones with more established service organizations such as IBM, DEC and HP performing better than the more recent entrants.

The quality of field technicians and the time it takes for one to respond to a service call continue to be the key features that distinguish one service organization from another.

As workstations enter more diverse businesses and serve more complex functions, training and consulting may become much more important. Users may also face more choices as third-party service organizations become a viable alternative to manufacturer service.

> THE QUALITY of field technicians and the time it takes for one to respond to a service call continue to be the key features that distinguish one service organization from another.

Aliber is a senior analyst with International Data Corp.'s Customer Service and Support Program in Framingham, Mass.

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The BoCoEx index on used computers

Closing prices report for the week ending June 30, 1989

	Closing price	Recent high	Recent low
IBM PC Model 076	$400	$625	$400
XT Model 086	$850	$1,150	$850
XT Model 089	$1,175	$1,400	$950
AT Model 099	$1,725	$1,850	$1,500
AT Model 239	$1,800	$2,100	$1,775
AT Model 339	$1,875	$2,000	$1,800
PS/2 Model 50	$1,750	$2,000	$1,750
PS/2 Model 60	$3,175	$3,300	$2,500
Compaq Portable I	$425	$750	$325
Portable II	$1,700	$2,100	$1,700
Portable III	$2,875	$2,950	$2,200
Portable 286	$1,900	$2,000	$1,675
Plus	$900	$1,200	$900
Deskpro 286	$2,000	$2,350	$1,800
Deskpro 386	$2,625	$2,900	$2,500
Apple Macintosh 512	$575	$650	$300
512E	$750	$975	$600
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Toshiba T-3100	$1,625	$1,850	$1,450
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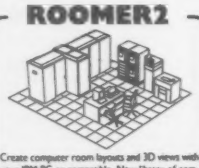

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PC courseware: To buy or not?

A cost comparison suggests that it can be cheaper to buy than to develop

BY RALPH KAPLAN
SPECIAL TO CW

There seems to be a misconception that in-house development of courseware for personal computer training tends to be better than purchasing commercially available packages. Courseware is like a parent's child — everyone thinks his are the best and merely tolerates others.

Why suffer these headaches when courseware that can fulfill most needs is often readily available at a reasonable cost? I contend that for standard PC courses, purchasing is the best approach, especially when compared with the alternatives.

Developing in-house courseware presents several of the following disadvantages:

- Staffing constraints. A small staff with many responsibilities cannot keep up with the everyday work load and develop quality courses at the same time.
- Revisions. Perhaps 30% of courseware needs revision each year and all of it needs major revision every two years.
- Cost. There are many costs to consider besides your time, such as copying, paper, binding, disks, rewrites and debugging.
- Time. These drawbacks lead to a lengthy development and implementation cycle.

In-house development also offers the following advantages:

- Ownership. A firm can do what it likes with the materials because it owns them. There is no concern about licensing fees.
- Consistency. Although it is possible to produce consistent materials, it requires significant time to outline exactly what is wanted and the format for it.
- Custom fit. If a great deal of time and effort is expended, the courseware can be exactly as desired (although the need for updating will still arise).
- Control. From start to finish, control and production of the courseware is yours alone.

Now let's look at the other option — buying the courseware. Again, there are disadvantages:

- Lack of consistency. It is highly unlikely that one vendor will have all the materials you want. The need to go to different vendors will probably present students with inconsistencies among courseware.
- Fit. You will discover that no off-the-shelf course will be exactly what you want. You may have to settle for 90% or 95% of your needs. You should ask yourself what you sacrifice in giving up the 5% or 10%.
- Discontinued service. It is possible that the vendor may stop supporting the product.

There also are advantages to the purchase route, such as the following:

- Speed. This is a major advantage. You can literally buy the course today and start teaching with it tomorrow. Also, courses can be added to your curriculum with minimal effort.
- Updates. It is the responsibility of the vendor to follow industry trends. Vendors should continue to develop, maintain and revise courseware.
- Cost. Buying is less expensive in dollars and time than developing courses from scratch.

These pros and cons do not provide a complete picture. Now we need to compare costs. Let us assume that developing a course takes 150 hours and a developer's time is worth $50 per hour. To develop 12 classes, the total cost would be $90,000. In contrast, we need about 10 hours to evaluate purchased courseware for each class, so 12 courses would cost $6,000.

Make or buy?

These calculations indicate it is less expensive to purchase courseware for PC training than to develop it in-house

Year	Cost to develop	Cost to purchase
1	$116,000	$45,000
2	$53,000	$36,000
3	$89,000	$45,000
4	$53,000	$36,000
5	$53,000	$36,000
6	$89,000	$45,000
Total	$453,000	$243,000

CW CHART: DOREEN DAHLE

Next, we need student materials, which can be made or bought. On the average, workbooks and exercise disks from a vendor cost $15 to $20 per student. Making them might cost $13 per student; it is cheaper to produce student materials.

Now let us compare costs for an entire year of training, assuming that there are 200 classes of 10 students for the 12 courses. Producing courseware in-house costs $90,000 for development and $26,000 for student materials ($13 per student multiplied by 200 classes multiplied by 10 students per class) for a total of $116,000.

Buying courseware would cost $6,000 for evaluation, $36,000 to buy student materials ($18 per student) and $3,000 for 12 instructor kits ($250 each) for a total price of $45,000.

In the second year, about 30% of the courseware developed in-house would need minor revisions at a cost of $27,000. Student materials would bring the total to $53,000. With the purchase option, no more evaluation is necessary; the only cost is student materials at $36,000.

Kaplan is a senior IS analyst in the training unit of Carolina Power & Light in Raleigh, N.C.

Computerworld's Training Editorial Schedule

July 17
Developing a training needs analysis

July 24
Tailored enduser training

July 31
Should information centers report to the technical training manager?

August 7
Directing training to achieve organization goals

August 14
Why training doesn't solve every performance problem

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June 17-July 19 . . . . . Washington, DC
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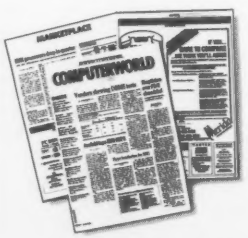

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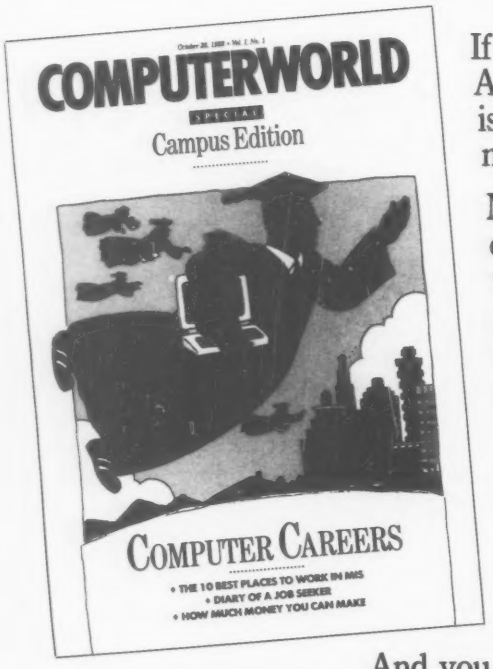

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- MIS salary and job satisfaction survey
- Where are the best jobs?/What positions are hot?
- Experiences of recent MIS graduates in their first jobs and what helped them in school
- The MIS career ladder
- Profiles of acclaimed top level MIS executives
- The strategic advantage of computers and how they play a key role in running a company

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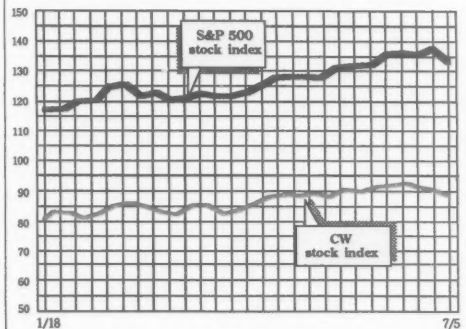
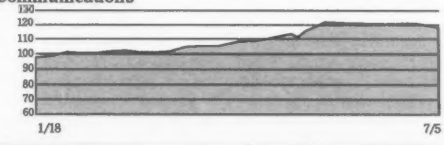
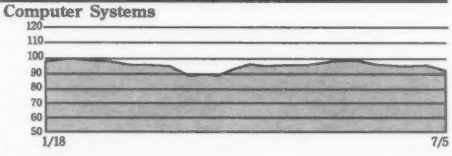


Indexes	Last Week	This Week
Communications	121.5	118.9
Computer Systems	95.6	92.9
Software & DP Services	114.6	111.1
Semiconductors	58.8	57.6
Peripherals & Subsystems	81.4	79.6
Leasing Companies	111.0	110.9
Composite Index	90.4	88.6
S&P 500 Index	138.4	134.5

Communications



Computer Systems



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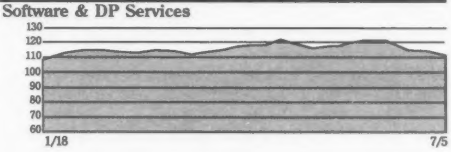
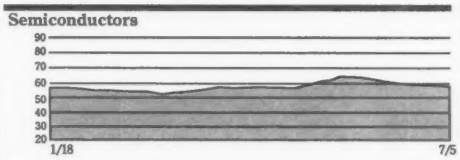
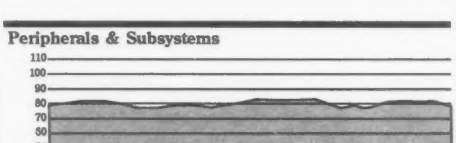


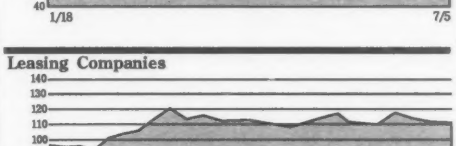
Semiconductors



Peripherals & Subsystems



Leasing Companies



CW CHARTS

Computerworld Stock Trading Summary

CLOSING PRICES WEDNESDAY, JULY 5, 1989

EXCH		52-WEEK RANGE		PRICE CLOSE JULY 5, 1989	WEEK NET CHNGE	WEEK PCT CHNGE
	Communications and Network Services					
N	AMERICAN INFO TECHS CORP	62	44	57.625	-1.5	-2.5
Q	ANDREW CORP	23	16	22.25	-0.3	-1.1
Q	ARTEL COMM CORP	7	2	5.5	-0.4	-6.4
N	AT&T	37	24	35.25	-0.9	-2.4
Q	AVANTEK INC	7	4	5.25	0.3	5.0
N	AYDIN CORP	19	13	16.75	-0.6	-3.6
N	BELL ATLANTIC CORP	92	68	87.75	-0.8	-0.8
N	BELLSOUTH CORP	52	39	48.375	-1.1	-2.3
Q	COMPRESSION LABS INC	9	3	7.25	-0.6	-7.9
Q	COMPUTER NETWORK TECH	2	1	2.313	-0.1	-3.9
Q	CONTEL CORP	66	33	62	-0.6	-1.0
Q	DATA SWITCH CORP	8	4	4.375	-0.1	-2.8
Q	DIGITAL COMM ASSOC	38	17	20	-0.3	-1.2
Q	DYNATECH CORP	23	17	17.5	0.3	1.4
Q	FIBRONICS INTERNATIONAL INC	7	3	6	-0.1	-2.0
Q	GANDALF TECHNOLOGIES	7	4	5.375	0.1	2.4
Q	GENERAL DATACOMM INDS	6	3	5.125	-0.1	-2.4
N	GTE CORP	56	38	54	-1.5	-2.7
Q	INFOTRON SYS CORP	13	10	9.75	-0.8	-7.1
N	ITT CORP	61	46	58	-1.0	-1.7
N	M A COM INC	11	6	7.75	-0.3	-3.1
Q	MCI COMMUNICATIONS CORP	42	15	37.625	0.1	0.3
N	NETWORK EQUIP TECH INC	25	14	20.625	-1.1	-5.2
Q	NETWORK SYS CORP	12	8	8.5	0.0	0.0
N	NORTHERN TELECOM LTD	20	14	18.125	-0.9	-4.6
Q	NOVELL INC	38	24	29.25	0.1	0.4
N	NYNEX CORP	84	63	80.25	-0.8	-0.9
N	PACIFIC TELESIS GROUP	43	28	40.25	-0.8	-1.8
A	PENRIL CORP	6	3	5.625	-0.8	-11.8
N	PLESSEY PLC	46	25	40.25	-0.8	-1.8
N	SCIENTIFIC ATLANTA INC	20	10	19	-0.4	-1.9
N	SOUTHWESTERN BELL CORP	54	36	51.625	0.1	0.2
Q	3 COM CORP	29	16	17.5	0.3	1.4
N	U S WEST INC	72	53	70.5	0.0	0.0
	Computer Systems					
Q	ALLIANT COMPUTER SYS	6	3	4.5	-0.4	-7.7
Q	ALPHA MICROSYSTEMS	8	5	5.625	0.3	3.9
Q	ALTOS COMPUTER SYS	10	6	6.25	0.0	0.0
A	AMDAHL CORP	27	16	16.5	-3.6	-18.0
Q	APPLE COMPUTER INC	90	34	40.5	-1.3	-3.0
N	BOLT BERANEK & NEWMAN	12	7	7.875	0.3	3.3
N	COMPAQ COMPUTER CORP	102	50	89.75	-3.1	-3.4
N	COMMODORE INTERNATIONAL	20	9	14	0.0	0.0
Q	COMPUTER AUTOMATION INC	7	3	3.625	-0.1	-3.3
N	CONTROL DATA CORP	28	16	21.25	-1.3	-5.6
Q	CONVEX COMPUTER CORP	15	7	12.625	-0.1	-1.0
N	CRAY RESH INC	67	49	49.5	-1.4	-2.7
Q	DAISY SYS CORP	11	3	3.375	0.0	0.0
N	DATA GEN CORP	25	14	17.375	-0.9	-4.8
N	DATAPOINT CORP	6	3	4.5	0.0	0.0
N	DELL COMPUTER CORP	13	7	7.875	-0.1	-1.6
N	DIGITAL EQUIP CORP	122	86	95.25	0.9	0.9
N	FLOATING POINT SYS INC	4	2	2.5	-0.1	-4.8
N	HARRIS CORP	35	25	32.75	-0.6	-1.9
N	HEWLETT PACKARD CO	62	44	51.5	-1.6	-3.1
N	HONEYWELL INC	80	57	73.25	-2.1	-2.8
N	IBM	131	108	112	-1.9	-1.6
Q	INFORMATION INTL INC	16	13	15.375	0.0	0.0
Q	IPL SYS INC	9	2	7	-0.5	-6.7
N	MAI BASIC FOUR INC	21	5	5.5	-0.4	-6.4
N	MATSUSHITA ELEC INDL LTD	219	158	175	11.8	7.2
Q	MENTOR GRAPHICS CORP	45	23	36	-2.3	-5.9
N	NBI INC	5	1	2.5	0.0	0.0
N	NCR CORP	66	51	53.75	-0.9	-1.6
N	PRIME COMPUTER INC	21	12	18.25	0.3	1.3
Q	PYRAMID TECHNOLOGY	20	9	10.75	0.1	1.2
Q	SHAREBASE CORP	4	2	2.625	-0.3	-8.7
Q	SILICON GRAPHICS CORP	24	14	16.75	-1.0	-5.6
Q	STRATUS COMPUTER	35	21	26.5	1.1	4.1
Q	SUN MICROSYSTEM INC	23	13	17.25	0.3	1.5
Q	SYMBOLICS INC	3	1	1.625	-0.2	-10.4
Q	SEQUENT COMPUTER SYS	28	14	22.25	-1.1	-4.8
N	TANDEM COMPUTERS INC	21	12	17	-0.6	-3.5
N	TANDY CORP	47	38	44	-2.4	-5.1
N	ULTIMATE CORP	14	8	9.25	-0.8	-7.5
N	UNISYS CORP	37	24	24.375	-0.9	-3.5
A	WANG LABS INC	11	7	7.25	-0.6	-7.9
	Software & DP Services					
Q	ADVANCED COMP TECH	4	1	1.75	0.0	1.8
Q	AMERICAN MGMT SYS INC	19	11	11.5	-0.4	-3.2
Q	AMERICAN SOFTWARE INC	18	8	15.625	-0.5	-3.1
N	ANACOMP INC	11	5	5.875	-0.3	-4.1
Q	ANALYSTS INTL CORP	21	8	19.5	-0.5	-2.5
Q	ASHTON TATE	28	17	17.25	-0.8	-4.2
Q	ASK COMPUTER SYS INC	18	12	12.625	0.4	3.1
Q	AUTODESK INC	40	23	35.25	-0.3	-0.7
N	AUTO DATA PROCESSING	42	35	40.25	-0.8	-1.8
Q	BMC SOFTWARE INC	21	8	19.5	-0.3	-1.3
Q	BOOLE & BABBAGE INC	20	9	17.5	-0.4	-2.1
N	BUSINESSLAND INC	15	10	12	-0.5	-4.0
N	COMPUTER ASSOC INTL INC	22	12	18.75	-0.1	-0.7
Q	COMPUTER HORIZONS CORP	12	7	7.875	-0.4	-4.5
N	COMPUTER SCIENCES CORP	56	41	52.125	-1.9	-3.5
Q	CORPORATE SOFTWARE	16	9	10.75	-1.0	-8.5
N	COMPUTER TASK GROUP INC	17	11	11.875	-1.0	-7.8
Q	COGNOS INC	9	5	5.875	0.1	2.2
Q	COMSHARE INC	35	18	32	-1.3	-3.8
N	CULLINET SOFTWARE INC	9	4	8.875	0.0	0.0
N	GENERAL MTRS (CLS E)	54	38	51.5	-0.1	-0.2
Q	HOGAN SYS INC	7	4	5.75	-0.4	-6.1
Q	INFORMIX CORP	25	7	9.375	-0.3	-2.6
Q	INTELLICORP INC	5	2	3.875	0.1	3.3
Q	KEANE INC	19	5	13.5	-0.8	-5.3
Q	LEGENT CORP	28	16	24.75	0.0	0.0
Q	LOTUS DEV CORP	27	15	23.75	-0.8	-3.1
Q	MANAGEMENT SCI AMER	14	6	10	-0.6	-5.9
Q	WORDSTAR	4	2	2.25	0.0	0.0
Q	MICROSOFT CORP	71	45	56.25	2.5	4.7
Q	NATIONAL DATA CORP	34	19	29.5	-0.9	-2.9
N	ON LINE SOFTWARE INTL INC	7	4	6.75	0.0	0.0
Q	ORACLE SYS CORP (X)	17	7	15.375	-16.4	-51.6
N	PANSOPHIC SYS INC	18	12	13.625	-0.9	-6.0
Q	PHOENIX TECHNOLOGIES INC	19	10	10.5	-1.3	-10.6
Q	POLICY MGMT SYS CORP	31	21	29	0.3	0.9
Q	PROGRAMMING & SYS INC	20	11	19.5	-0.5	-2.5
Q	RABBIT SOFTWARE INC	3	1	1.188	-0.2	-13.6
Q	RELATIONAL TECHNOLOGY INC	21	9	9.375	0.3	2.7
N	REYNOLDS & REYNOLDS CO	34	18	24.5	-0.8	-3.0
Q	SEI CORP	21	16	16.625	-0.4	-2.2
Q	SHARED MED SYS CORP	23	14	17	0.6	3.8
Q	SAGE SOFTWARE INC	10	6	7.875	0.0	0.0
Q	SOFTWARE PUBG CORP	29	16	24.375	0.5	2.1
A	STERLING SOFTWARE INC	8	5	6.938	-0.1	-0.9
Q	SUNGARD DATA SYS INC	20	13	16.5	-0.5	-2.9
Q	SYSTEMATICS INC	37	28	33.5	1.3	3.9
N	SYSTEM CENTER INC	25	13	24.25	0.3	1.0
N	SYS. SOFT INC	27	11	22.5	-1.3	-5.3
	Semiconductors					
N	ADV MICRO DEVICES INC	17	7	9.875	-0.1	-1.3
N	ANALOG DEVICES INC	18	10	10.5	-0.1	-1.2
Q	ANALOGIC CORP	11	7	10.25	0.0	0.0
Q	CHIPS & TECHNOLOGIES INC	26	11	24.5	1.5	6.5
Q	INTEL CORP	37	19	28.25	-2.3	-7.4
Q	LSI LOGIC CORP	14	8	9	0.0	0.0
Q	MICRON TECHNOLOGY INC	26	15	18.375	-1.6	-8.1
N	MOTOROLA INC	60	36	51.375	-2.4	-4.4
N	NATL SEMICONDUCTOR	13	7	7	-0.1	-1.8
N	TEXAS INSTRS INC	50	35	39.125	-1.3	-3.1
A	WESTERN DIGITAL CORP	16	9	9.625	-0.1	-1.3
	Peripherals					
Q	ALLOY COMP	4	1	1.875	-0.3	-11.8
N	AM INTL INC	6	5	5	-0.4	-7.0
Q	AST RESH INC	17	7	9.5	0.5	5.6
Q	AUTO TROL TECH CORP	6	4	5	-0.1	-2.4
Q	BANCTEC INC	15	8	13.125	-0.5	-3.7
Q	CIPHER DATA PRODS INC	11	8	7.875	-0.3	-3.1
A	COGNITRONICS CORP	5	2	4.75	-0.3	-5.0
Q	CONNOR PERIPHERALS	15	7	12.125	-0.4	-3.0
A	DATAPRODUCTS CORP	18	10	13.25	-0.4	-2.8
A	DATARAM CORP	11	7	8.75	-0.5	-5.4
N	EASTMAN KODAK CO	52	42	47.125	-1.8	-3.8
Q	E M C CORP MASS	7	3	5.375	0.1	2.4
Q	EMULEX CORP	12	7	9	0.1	1.4
Q	EVANS & SUTHERLAND	22	13	17.5	-0.8	-4.1
Q	ICOT CORP	4	2	1.875	-0.1	-6.3
Q	INTERLEAF INC	14	6	7.875	-0.4	-4.5
Q	IOMEGA CORP	5	2	2.5	-0.2	-7.0
Q	LEE DATA CORP	4	2	3	-0.3	-7.7
Q	MASSTOR SYS CORP	4	2	2.063	-0.1	-2.9
Q	MAXTOR CORP	12	6	9.375	-0.4	-3.8
Q	MICROPOLIS CORP	19	5	5.125	0.0	0.0
Q	MINISCRIBE CORP	14	1	3.25	0.3	10.6
N	MINNESOTA MNG & MFG CO	75	35	70.75	-2.6	-3.6
Q	PERSONAL COMPUTER PRODUCTS INC	6	4	4.5	0.0	0.0
Q	PRIAM CORP	2	1	0.688	0.1	22.2
Q	PRINTRONIX INC	11	7	8.75	-0.1	-1.4
N	QMS INC	9	6	8.25	-0.3	-2.9
Q	QUANTUM CORP	22	6	18.75	-1.3	-6.3
N	RECOGNITION EQUIP INC	12	6	12	0.0	0.0
Q	REXON INC	8	6	7.375	-0.3	-3.3
Q	SEAGATE TECHNOLOGY	19	7	14.125	0.1	0.9
N	STORAGE TECH CORP	36	11	14	-0.6	-4.3
Q	TANDON CORP	3	1	0.625	-0.1	-16.7
N	TEKTRONIX INC	26	19	22	-0.9	-3.8
Q	TELEVIDEO SYS INC	1	0	0.313	0.0	0.0
N	XEROX CORP	69	52	62.375	-1.8	-2.7
	Leasing Companies					
Q	AMPLICON INC	115	11	16.25	2.0	14.0
N	CAPITAL ASSOCIATES INTERNATIONAL INC	9	5	7.25	0.1	1.8
N	COMDISCO INC	28	19	25.75	-0.3	-1.0
Q	CONTINENTAL INFO SYS	7	0	0.5	0.0	0.0
Q	LDI CORPORATION	17	13	15.625	0.1	0.8
Q	PHOENIX AMERN INC	5	3	3.5	-0.1	-3.4
Q	SELECTERM INC	9	5	8.625	0.1	1.5

EXCH: N = NEW YORK; A = AMERICAN; Q = NATIONAL; X = EX-DIVIDEND

Explosive

Apple takes its money and runs, sending a shiver through Adobe

The technology sector waited until after the Fourth of July to launch its fireworks. Apple Computer, Inc. announced that it was selling off its holdings in Adobe Systems, Inc. Apple's investment had accounted for more than 80% of Adobe's revenue in 1986, but less than 30% at the time of sale, Adobe officials said. Nevertheless, the divestiture and Apple's expected announcement of competitive electronic publishing products rocked Adobe's stock; it dropped 2 points to close Thursday at 24½. Apple, which had fallen slightly during the week, recovered to close unchanged at 41¼.

3Com Corp. rose steadily during the week to close at 18, up 1⅞ points. Digital Communications Associates, Inc., citing renewed rumors of a takeover attempt, saw its shares climb 2⅛ points to close at 22⅛. Digital Equipment Corp. was another big winner, gaining 3½ points to finish at 95¼. MAI Basic Four, Inc. continued its struggle to gain hold of Prime Computer, Inc. by filing suit to halt J. H. Whitney & Co.'s acquisition of Prime. MAI climbed ⅛ of a point to close at 6; Prime inched down ⅛ to finish at 19⅛.

Meanwhile, Compaq Computer Corp. continued to see-saw, falling 1⅛ points to close at 90⅛, and IBM dropped ¼ of a point to finish at 111⅝.

JOSEPH J. FATTON

No place like home, smart home

BY MICHAEL ALEXANDER
CW STAFF

When the home of the future arrives in the next year or so, it will be a lot smarter than the home of today, thanks in part to a local-area network of sorts called a home bus.

In the "smart" or "intelligent" home, sophisticated microprocessor-controlled electronics automatically take over the mundane chores of running the household, whether that means priming the security system, regulating energy consumption, heating a hot tub to the perfect temperature or watering the lawn in the early morning.

A central controller, either a personal computer or a specially designed system, regulates the flow of data and signals between household appliances, audio-video gear, security systems and other devices. Most operations can also be triggered by Touch-Tone telephone or by a handheld infrared remote control.

The technology to turn a dream house into reality has existed for some years. What has been missing is a LAN, or "home bus," that would allow a myriad of products to interact.

Two powerful trade groups — the National Association of Home Builders (NAHB) and the Electronics Industry Association (EIA) — are pushing their own standards for a home bus. The two systems are similar in that they will permit numerous microprocessor-controlled devices to interact, regulated by a central controller (though not necessarily a personal computer). But that is about all the two systems have in common.

The EIA, which uses the working name of CE Bus for its home network, will have a home bus standard and brand name for the bus by the end of the year, according to Tom Lauterback, vice-president of communications for the EIA's Consumer Electronics Group.

Recycling wires

The trade group, which mostly represents makers of consumer electronics products, says its CE Bus system will make use of electrical, telephone and cable television wiring systems already in homes, as well as radio transmissions and infrared light beams.

Although using the existing tangle of wires in the typical home is not the most reliable approach, it is the least expensive: A basic system would cost about $4,000 to $5,000, affordable for many homeowners, according to the EIA. The cost of various devices for CE Bus would not have to be borne by a homeowner all at once but as budget and needs permit, Lauterback added.

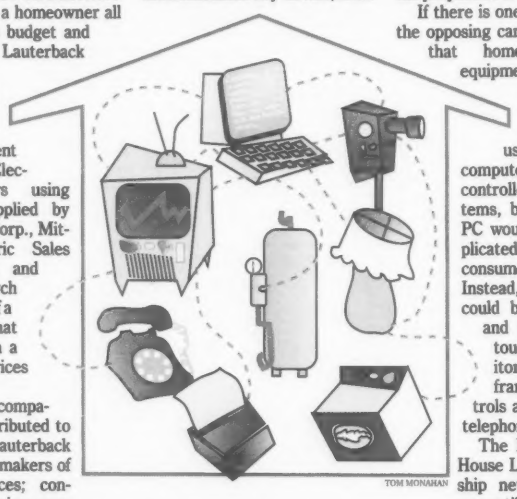
The CE Bus system has been demonstrated at recent Consumer Electronics shows using equipment supplied by AT&T, Sony Corp., Mitsubishi Electric Sales America, Inc. and Aisi Research Corp., maker of a CE Bus chip that will be used in a variety of devices on the bus.

In all, 310 companies have contributed to the standard, Lauterback said, including makers of major appliances; consumer electronics; personal computers (notably IBM); heating, ventilation and air-conditioning systems; and several telephone companies.

The NAHB, which primarily represents makers of products used in home construction, utilities and telephone companies, is touting a more ambitious bus called the Smart House System, which is based on an entirely new wiring scheme.

The NAHB bus project is headed by the Smart House Limited Partnership, a for-profit effort that has the financial backing of more than 100 companies, including AT&T, Honeywell, Inc., Apple Computer, Inc., Southwestern Bell Telephone Co. and other telephone companies and several gas and electric utilities.

Smart House proponents are advocating a system based on a single, hybrid cable that will carry power, data, audio, video, telephone and control signals. The system will also use a universal plug and receptacle that accommodates any device, from a telephone to a television set.



TOM MONAHAN

Smart House wiring would permit a more sophisticated degree of interaction among different products than CE Bus but could only be installed in new homes, at least to start. The owners of existing homes, therefore, would be a ready market for CE Bus devices, and that could be an overwhelming advantage, CE Bus proponents said.

Also, Smart House systems would cost more, probably twice as much as CE Bus. Engineering estimates for a medium-size Smart House range from $7,000 to $10,000 for wiring, controllers and specially designed outlets, said Ken Geremia, a spokesman for the Smart House Limited Partnership. In comparison, it costs $2,000 to $4,000 to install conventional wiring in a similar-size home, Geremia said.

Baltimore Gas and Electric Co. recently completed a prototype house in Baltimore that will be used by Smart House participants to test new products on the proposed bus.

If there is one area on which the opposing camps agree, it is that home automation equipment should be easy to operate. Neither side advocates using personal computers as a central controller for bus systems, believing that a PC would be too complicated for the average consumer to operate. Instead, both systems could be programmed and operated using touch-screen monitors, handheld infrared remote controls and Touch-Tone telephones.

The EIA and Smart House Limited Partnership networks are incompatible, suggesting that a replay of the Beta vs. VHS videocassette recorder controversy is in the offing.

Proponents of both systems fret that consumers will find it hard to choose a system or even commit to the notion of home automation.

Medama, Inc., a subsidiary of Mitsubishi, has been test-marketing its Mitsubishi Home Automation System for more than two years, but the firm shelved plans to introduce it this summer. It is waiting until the standards issue is resolved, said Bruce Abraham, marketing manager for Medama. It may be as much as two years before Medama introduces a system, he added.

As standards get resolved, market tests home systems

BY MICHAEL ALEXANDER
CW STAFF

While the Electronics Industry Association and the National Association of Home Builders are struggling with standards for a home bus, several firms are already testing the market for home automation gear and services.

Unity Systems, Inc. has installed more than 1,500 of its Home Manager systems nationwide, according to Michael O'Neill, who heads a company that specializes in installing the systems.

The Home Manager's central controller can be programmed to monitor and control systems for energy, lighting and security, as well as other electrical and mechanical products. It is programmed via a touch-sensitive screen that displays the home's floor plan and menus of step-by-step programming instructions. It can also be remotely operated by a Touch-Tone telephone or personal computer, allowing a homeowner to monitor and control the house from the office or while on vacation. An entry-level system costs about $5,500.

Earlier this year, AT&T co-sponsored Discovery House at a trade show for home builders intended to showcase 21st-century technology. Among the systems on display was its Home Star wiring system, which accommodated an AT&T facsimile machine, security system, two-line telephone and communication system with an intercom as well as audio-video gear and devices from other firms.

AT&T and Nintendo Co. have held talks that may lead to consumers using Nintendo's enormously popular video game machine to download games and stock market, shop-at-home and travel information, both companies said recently. Nintendo already offers such a service to Japanese consumers who own its machines.

Bell Atlantic Corp. is testing a service that would enable homeowners to control heating, cooling and security systems by Touch-Tone telephone. The regional holding company recently signed an agreement with Teletimer International, Inc. and Square D Corp. to collaborate on a home automation system for newly built homes. Using electronic equipment manufactured by Teletimer and Square D, a consumer could control a variety of home devices by Touch-Tone telephone, for example, turning on an air conditioner before heading home in the evening's commute.

And you never have to get out of bed

Gene Hollander, who works as a self-employed manufacturers' representative from his home in Medway, Mass., likes to take care of business at about 4 o'clock in the morning. It is then that his facsimile machine transmits documents to suppliers while the rates are lowest. "I can send hard copy to all nine of my factories, which are all over the country and in Italy, for only the cost of a telephone call," Hollander explained. In addition to the fax machine, he uses the gamut of home office equipment in his business, including a personal computer, telephone answering machine and photocopier. "If you can tie into your suppliers and customers electronically, you're ahead of the game," he said.

Getting ahead of the game electronically is prompting more Americans than ever to take care of business at home. The number of home office workers who derive at least part of their income from working at home now totals about 14 million, according BIS CAP International, a market research firm in Norwell, Mass. Another 14 million professionals routinely shuttle work between their homes and offices, the market researcher said.

"These offices are being set up by entrepreneurs who are knowledgeable about technology and are eager to apply it," said Ray Boggs, director of small business/home office market service at BIS CAP International. This year, home office and small business operators will spend $19.6 billion on office equipment and supplies, the analysts said. They will spend about $6 billion on personal computers alone, according to BIS CAP International.

Stay-at-home workers are twice as likely as the general population to own PCs, the device that is probably most responsible for triggering the home office revolution.

Several companies have targeted the home office market with inexpensive PCs intended to be sold through such mass merchandising outlets as K Mart Corp., Service Merchandise Co. and Best Buy, Inc. Blue Chip Electronics, Inc., Epson America, Inc. and Packard Bell already sell PCs through those outlets.

Developers snub SAA generator

BY STANLEY GIBSON
CW STAFF

IBM's designated application generator for its Systems Application Architecture (SAA) is still generating mostly skepticism among developers.

IBM has been urging customers to adopt the fourth-generation language and recently tried to drum up support for Cross System Product (CSP) by lining up nine computer-aided software engineering vendors to announce their support for CSP features.

"IBM has said CSP is strategic, so yes, we are using it for some work," said George DiNardo, executive vice-president at Mellon Bank NA in Pittsburgh.

Although many believe IBM will, with considerable commitment of resources, overcome several CSP weaknesses, several have shunned it for their own development at present.

Doubts CSP viability

"We have postponed development on CSP because we don't think it is viable," said Mark Shinbrood, vice-president of Chicago operations at Global Software, Inc., a vendor of financial applications.

A CSP that is able to generate applications to run on all SAA platforms — OS/2, Application System/400, MVS and VM — is important to IBM's SAA strategy in that it would give developers and users the means to quickly produce SAA applications using a fourth-generation language.

Currently, most SAA development is being done in third-generation languages such as C, Cobol and Fortran.

Two major weaknesses of CSP are that it is not available for the AS/400 and it is not yet capable of generating client/server-type applications.

Global's decision was made in part because CSP does not run on the AS/400 — where Global sees much of its future business. However, on June 20, IBM announced that CSP/Application Execution would be available for the AS/400 later this year to run programs developed on 370-architecture systems. CSP consists of two components: CSP/Application Execution, which executes applications, and CSP/Application Development, an environment for writing applications.

SAA UPDATE

It is unclear when or even if the CSP/AD component will be available for the AS/400. IBM declined to comment.

Also, the emphasis on client/server architecture under SAA has made life more difficult for CSP, which in its current form can generate only terminal — or what IBM now calls nonprogrammable workstation — screens.

As a result, CSP cannot generate a client/server application, as now described by IBM under SAA. An IBM spokesman said, "IBM clearly intends to support programmable workstation applications," but he would not specify when.

One developer, who asked not to be named, expressed pessimism about CSP's future. "I can't see CSP getting to the point to be fully SAA. If you write in CSP now, it is a 10-year-old perspective of what applications are like," he said.

Notwithstanding their skepticism, developers said they believe IBM's commitment to CSP is serious.

Chuck Riegel, director of marketing at Business Software Technology, Inc. (BST) in Westboro, Mass., likened IBM's commitment to CSP to its earlier approach to DB2.

Although DB2 was not well received at first because of what many perceived to be functional weaknesses, IBM kept enhancing it and sold it very aggressively, eventually gaining a dominant market position.

"IBM wants it to succeed, and they are putting a lot behind it," Riegel said.

BST recently announced that it is developing a version of its Endevor change management package to work with CSP. Using the package, developers should be able to track and manage the progress of development in CSP.

VSE

FROM PAGE 1

had heard last November at a Guide, Inc. meeting in New Orleans. Large users were especially pleased that IBM relieved them of both virtual storage constraints and the impending strain on their budgets from possible conversion to MVS.

Steve Kernard, head of Computing Technical Support at Hughes Aircraft Co. in Irvine, Calif., dubbed 31-bit addressing and dynamic reconnect as "VSE/XA mode," which he said "will allow us to continue the growth of our manufacturing system."

Kernard said he was not certain how much functionality IBM would put into VSE but regarded the news "as part of a constant effort to merge the two operating systems into one."

Robatzek said IBM will maintain two distinct mainframe operating systems, divided by functionality, but that "VSE is the best bet for someone looking for an entry-level MVS."

Kernard, however, said that IBM funds only five-year working plans and "that IBM's VSE direction is only short term."

The duration of the plan notwithstanding, IBM's VSE enhancements are not all targeted at the needs of the VSE user. According to Marty Clague, IBM's assistant general manager of marketing in Enterprise Systems, 31-bit addressing in VSE will smooth transition from VSE into MVS. "Once one gets the 31-bit addressing, which is the real barrier, and the channel management, the transition to MVS is much easier," Clague said.

Swayed by 31 bits

For William Dodge, systems programming team leader at the National Wildlife Federation in Vienna, Va., the promise of 31-bit addressing, aired at Guide, reversed his decision to migrate from VSE to the MVS operating system.

Dodge said that the shop had been suffering from virtual storage constraints, which 31-bit addressing will relieve. "As long as I am getting CICS terminal response times within my user requirements, I have no reason or desire to make a conversion," he said.

According to Dodge, up-front MVS migration costs would have been in excess of $750,000, and monthly operating expenses would have increased sixfold to $20,000 per month.

VSE user Peter Clark, systems programming and database and data communications administrator at Olan Mills, Inc. in Chattanooga, Tenn., viewed the news as a victory for VSE users and a prudent political maneuver for IBM, specifically in warding off defections to Digital Equipment Corp. and other vendors.

"IBM didn't want to force a user base to make a decision that [IBM] would not be happy with," Clark said.

Another large VSE user, an IS director who requested anonymity, said that 31-bit addressing increases VSE's viability and will allow installations to take advantage, for example, of above-the-line CICS code blocks, while leaving room below the line for existing user code.

The IS director, however, said that he suspected that IBM will also substantially raise the price of VSE. "Therein lies the rub," he said, "because VSE has always been the path of choice for the smaller organization that can't afford the MVS budget."

He added that CICS under VSE has always been about one-third the cost of CICS under MVS. "If the VSE price climbs between 50% to 75% of that cost," he said, "IBM could price many people out of the market."

No guesses

Clague said that he could not speculate on the increased costs, which will not be established until the release containing the enhancements becomes available. Kernard said that "high-end users don't have a problem with pricing but they have a problem with functionality."

Clague would not speculate about the requisite hardware for running the enhanced software. He said, however, that the software will be tied to the current generation of hardware and will depend on microcode and the amount of storage a processor can handle.

On the other hand, Bill Husband, a senior consultant at the Meridian Group in Deerfield, Ill., said that "through the next four years, the growth path for air-cooled uniprocessors will be expanded from today's 4.7 to about 20 MIPS, while remaining close to today's architecture." He said that VSE will be able to run natively on the 20-MIPS machine without another operating system, such as VM, as a crutch.

Congress opts for MCI network over FTS-2000

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — The U.S. Congress, which forced other federal agencies to use the government's new Federal Telecommunications System 2000 (FTS-2000) voice/data network, decided last month to bypass FTS-2000 for its own wide-area network and sign up with MCI Communications Corp. instead.

According to the Architect of the Capitol, the office that made the selection, the MCI contract calls for voice, data and image transmission over a virtual private network. The contract is worth $10 million to $20 million during its two-year term, an MCI spokeswoman said, and then could be renewed or converted to FTS-2000.

The Architect of the Capitol's engineering staff reportedly selected MCI because its bid offered network flexibility and intensive traffic monitoring and cost less than FTS-2000.

Congress enacted legislation last year that requires all agencies in the executive branch to join the FTS-2000 network provided by AT&T and U.S. Sprint Communications Co.

MCI's network for the legislative branch will serve 1,400 congressional office locations, including legislators' district offices and congressional agencies such as the Library of Congress, the General Accounting Office, the Government Printing Office and the Office of Technology Assessment.

The contract award was welcome news for MCI, which was the big loser in the FTS-2000 competition last December [CW, Dec. 12].

Second-class postage paid at Framingham, Mass., and additional mailing offices.
Computerworld (ISSN 0010-4841) is published weekly, with a single combined issue for the last week in December and the first week in January of 1989 by CW Publishing/Inc., 375 Cochituate Road, Box 9171, Framingham, Mass. 01701-9171.
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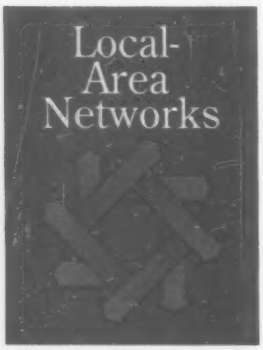
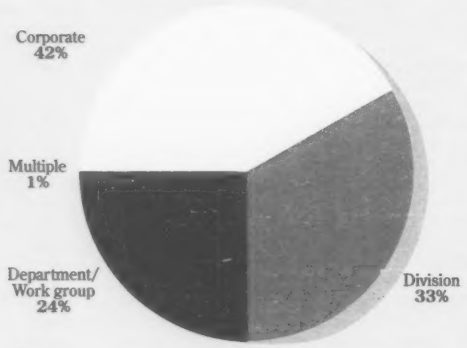


Now that users regard LANs as a basic resource for connectivity, they are shifting their focus to build on these networks for corporatewide communication.

LAN decision makers

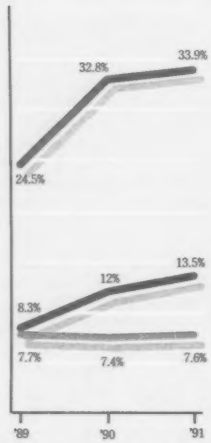
(Percent of respondents)



The authority for LAN decisions *generally is held at the corporate level, according to a survey of a cross-section of 170 LAN users. This reflects an increasing emphasis on LANs as an organizationwide issue.*

LAN spending

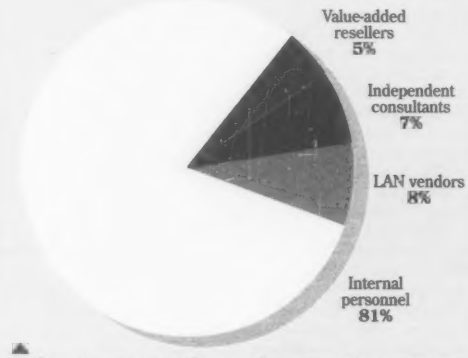
(Percent of data communications budget)



The biggest growth *will be seen among small users, while large users expect to keep LAN spending steady as they increase their overall data communications budgets.*

Responsibility for LAN management

(Percent of respondents)



IS departments most frequently *handle LAN management. These internal personnel currently rely on management utilities within their operating systems and are just beginning to use LAN-specific tools.*

SOURCE: THE YANKEE GROUP, BOSTON
CW CHARTS: TOM MONAHAN

INSIDE LINES

Who is this, please?

Caller identification, one of the major purported benefits of Integrated Services Digital Network, has been challenged in several courts because it reportedly breaches user privacy. However, courts are likely to rule that the feature is legal for in-WATS service, one source said, because "if you pay for the call, you're entitled to know who is calling." Savvy AT&T has tariffed its automatic-caller ID service for in-WATS only, so far.

That's gratitude

Wordtech Systems sold its SQL technology and development team to Ashton-Tate, gaining in return a concession from Ashton-Tate not to sue for copyright infringement over the then-current Wordtech Dbase-compatible line. But now Ashton-Tate has threatened to sue Wordtech for marketing a product called Dbase/SQL. A lawyer for Ashton-Tate notified Wordtech that it should cease and desist; however, the problem is that Wordtech claims not to have any product called Dbase/SQL. Wordtech President David Miller said that the Dbase/SQL product was the "ultimate vaporware, since it's unannounced, undesigned, undeveloped, unknown, has no marketing plan, sales plan, packaging plan nor any release date or pricing."

It had to happen

You know that when an upgrade of a product with millions of users ships, problems will emerge. As expected, reports are starting to filter in from the field concerning glitches in Lotus' 1-2-3 Release 3.0. There is a problem with an odd read-only memory BIOS that was never supposed to make it to market and some problems with memory boards. The latest hitch we heard of concerns an AST Research. personal computer sitting somewhere in the Pentagon. The user, who asks to remain classified, had to replace his ROM BIOS with a new one and is now finally up and running.

Antecedents now known

In a recent memo to clients, Gartner Group's Software Management Strategies Group praised and recommended OPS/MVS, software for "lights out" data center operations by MVS Software, Inc. A Dun & Bradstreet listing on MVS Software lists a Michael Braude among the firm's directors with "antecedents undetermined." As it turns out, Braude is also the vice-president and director of software management strategies at Gartner Group. While we were able to track down his antecedents late last week, we were unable to track him down for a comment. An MVS software spokesman said the D&B information is being revised.

DEC's PC operating system of the '90s?

After months of hedging on OS/2 support, DEC will finally bite the bullet tomorrow and embrace the operating system. As part of its "Computing for the '90s" event, the company will announce Decwindows for OS/2 along with other services under the Network Application Support services umbrella, according to a DEC spokesman.

Belt-tightening on target

Cincom Systems has shed 6% of its work force since an austerity program began in April, according to Cincom spokesman Ron Hank. Normal attrition runs at about 2%. The 4% increase over that amount meets the goal Cincom set for tightening its belt, he said. Hank would not comment, however, on whether Cincom is running in the black at this point.

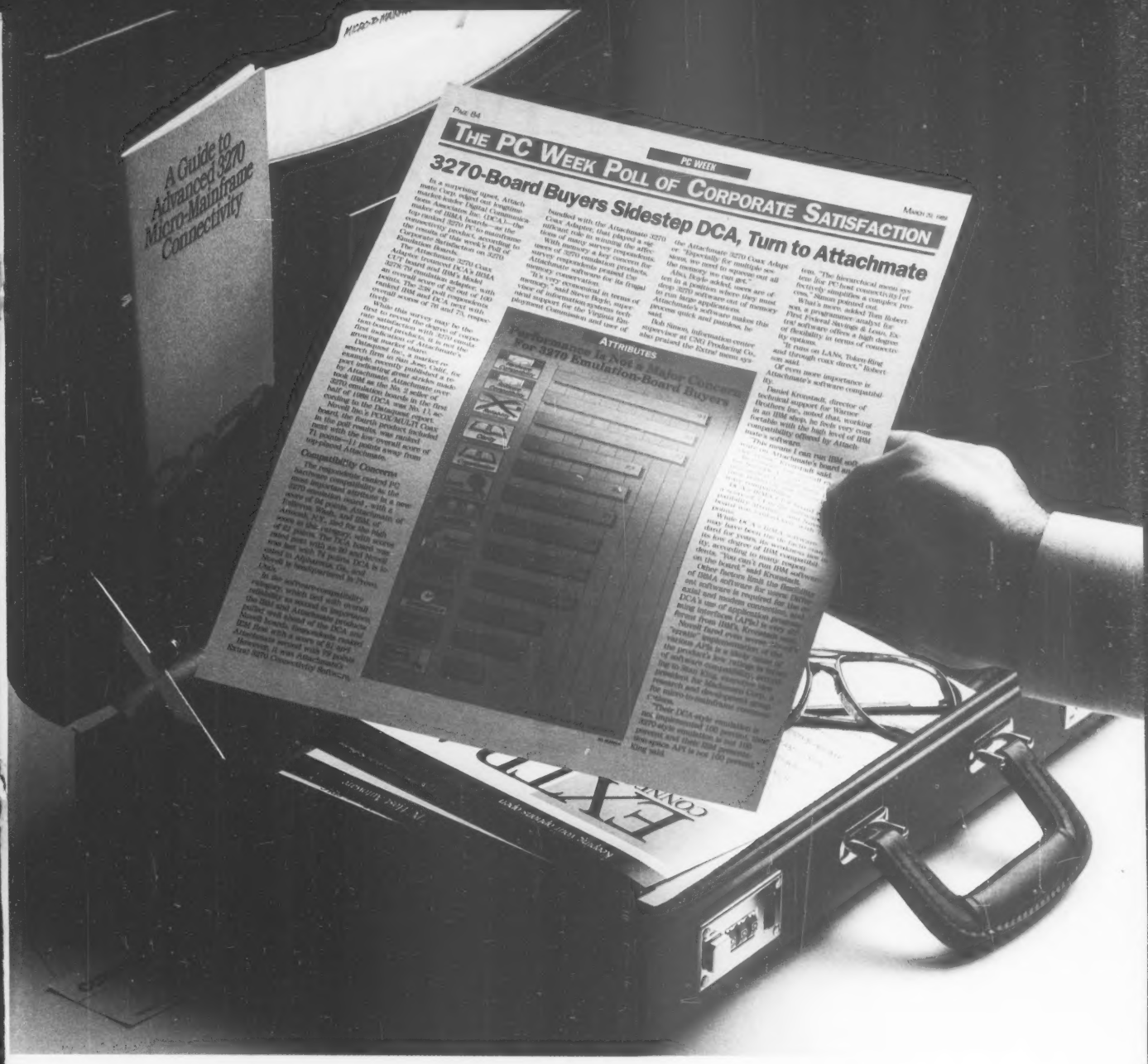
Who you gonna call? Bluebusters. *Not much response to last week's call for alternatives to IBM's current PS/2 jingle. There were a couple of suggestions from high-tech public relations firm Winston & Winston, Inc., however, on what IBM might have rejected as it plowed through myriad examples of marketing success: "For all you do, this bus's for you;" "Aren't you glad you use PS/2? Don't you wish everybody did?;" "It's such a comfort to own a bus." We'll keep the bulletin board open for the best and the wittiest takeoffs; upload all your offerings to News Editor Pete Bartolik by setting your modem to 508-626-0214.*

NEXT WEEK

He likes to fly airplanes for fun on weekends, but Vietnam veteran John Stevenson is all business when he's at the controls of the information systems department at Dr. Pepper/Seven-Up Co. in Dallas. A profile of Stevenson and a look at the soft-drink maker's IS strategy appears in Manager's Journal.

STAN WOLENSKI

IBM is walking a fine line between opportunity and disaster in its efforts to meet the promise of a repository. Robert Tasker, vice-president of International Data Corp., explains why there is great opportunity — as well as pitfalls — for IBM as the first vendor to push such a repository in IBM Watch on the Viewpoint page.



Find out what 238 experts know about the #1 choice in PC-mainframe connectivity.

A *PC Week* poll of 238 connectivity pros put Attachmate at the top in 10 key categories, including overall performance, IBM compatibility, documentation and support. We want to put this information into your hands immediately, plus a LAN-mainframe article from

Attachmate

PC Magazine that bestowed the coveted "Editor's Choice" award on Attachmate's EXTRA!™ software. To get a head start on *your* evaluation process, call for your free copies now: **1-800-426-6283.**

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PC Magazine "Editor's Choice," December 13, 1988

CHOOSING BETWEEN MSA AND MCCORMACK & DODGE IS LIKE CHANGING SEATS ON THE TITANIC.

She was a paragon of the world's technology, dubbed "the unsinkable ship." But what should have been an ocean-going triumph turned to tragedy due to poor planning, inept management, and lack of foresight.

Times haven't changed much.

In this day and age, the hazards of the software seas remain much the same. Poor product releases, inexperienced and ineffective customer support, and technological inflexibility riddle the mainframe software giants. The hidden costs of software and support still lurk beneath the surface. And changes decreed by IBM—such as SAA—make for even rougher seas ahead.

That's why if you're in the market for financial software, you shouldn't limit your choices to the old familiar names in the software industry to deliver you safely to your destination.

Instead, look at Data Design Associates.

We run a tight ship at Data Design by following a few basic rules. No big secrets. Our product teams consist of seasoned financial and data processing professionals. We develop all our systems in-house. We listen to our customers. And we adhere to industry standards.

The results are impressive.

Built upon our Eqqual® architecture, Data Design's financial software is perfectly suited to meet your constantly changing corporate demands for hardware and software flexibility. And perfectly developed to conform to SAA standards.

In short, you get software that is more efficient, easier to maintain and install, and more responsive to your business needs than any other software solution available. All backed by the highest quality customer support in the industry. From a company that has consistently increased sales and profit for over 16 consecutive years.

Perhaps that's why over two-thirds of our clients previously used MSA and M&D financial software. And why Alcoa, Bristol-Myers, Esprit, MasterCard International, Pillsbury, Warner-Lambert, and hundreds of other Fortune 1000 companies all rely on Data Design for comprehensive corporate financial management.

Don't wait for MSA and M&D to raise the Titanic. Call Data Design at (800) 556-5511. We promise you smooth sailing ahead.

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YOUR NEXT CHOICE

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